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Address

THE COORDINATION OF SINGLE MUSCULAR MOVEMENTS IN THE CENTRAL NERVOUS SYSTEM.*

C. E. BEEVOR, M.D., F.R.C.P.

Physician to the National Hospital for the Paralyzed and Epileptic.

LONDON, ENG.

It is with a deep sense of the great honor which has been bestowed on me that I come before you, and I can assure you that I appreciate very much the invitation which your chairman sent me to give an address before the Section on Nervous and Mental Diseases of the American Medical Association. I must confess to feeling somewhat disconcerted at the imposing names of professors who have preceded me, and I must crave your indulgence if I fail to attain the high standard which they have set.

In choosing a subject it seemed to me that the great value of international meetings or of the custom of inviting members of another country to give addresses consists largely in the opportunity it offers of bringing forward subjects which may not have engaged the attention of the members of the profession over here and may thus be the means of directing their thoughts into fresh channels. For this reason I have chosen the subject of the coordination of muscular movements in the central nervous system, as it is one of great importance from a practical as well as from a theoretical point of view and one which perhaps has not received the amount of attention which it merits.

First, it will be necessary to state what is meant by a muscular movement, what the different classes of muscles are which take part in any particular movement.

By the term muscular movement I mean the single movement of one joint, such as flexion of the thumb, or of several similar joints, such as flexion of all the fingers and the thumb as in grasping; I do not refer at present to such a combination of movements as are involved in the act of walking. Now what are the different classes of muscles which may take part in any particular movement, such as that of flexion of the fingers and thumb in the act of grasping? We have first the muscles which do the work, viz., the flexors of the fingers and thumb and which are called the prime or principal movers. We also have the antagonists to the movement, i. e., those muscles which produce the movement which is the opposite to the one we wish to perform, viz., the extensors of the fingers and thumb. Furthermore, we have to notice that the prime movers, the flexors of the fingers and thumb in their course from their origin in the forearm to their insertion into the phalanges pass over the wrist joint, and it will be evident that after these muscles have flexed the thumb and fingers they will also tend to flex the wrist.

This movement of flexion of the wrist, however, is not wanted, and it would be very awkward if, whenever we grasped an object firmly, the wrist would persist in flexing. How is this difficulty to be overcome? It is done by bringing other muscles into action which will prevent the wrist being flexed, and the muscles which can do this are the extensors of the wrist; so that whenever we perform the movement of grasping, the extensors of the wrist contract and their tendons on the dorsum of the wrist can be seen and felt to become tight. These muscles are called synergic muscles because they work with the prime movers whenever these muscles pass over two joints, and they neutralize the action of the muscles which is not required.

Other muscles which take part in simple movements are those which we may call fixation muscles, as they fix and prevent any movement in the joints intervening between the joint, in which the movement required is being performed, and the trunk. Taking the movements of the fingers as an example, it is found that in flexing the fingers against resistance, when the forearm is in the position of supination, the tendency of the resistance, if strong, is to overcome and extend the wrist and the elbow, and in order to counteract this tendency the flexors of the wrist and the flexors of the elbow—the biceps, supinator longus and other muscles—contract to fix the wrist and elbow joints. We have, therefore, the following classes of muscles which may take part in a movement: 1. Prime or principal movers. 2. Synergic muscles. 3. Fixation muscles. 4. Antagonists.

PRIME OR PRINCIPAL MUSCLES OF MOTION.

Taking first the prime or principal movers, we have to take into account in performing a movement whether muscles forming the prime movers all contract together, or whether there is any sequence, and whether the same sequence is always preserved. It is not easy to find a group of muscles in which it can be ascertained which particular muscle is contracting first. But in supinating the forearm the two chief muscles are the supinator brevis and the biceps, and if no work is being done it is possible to supinate the forearm without producing any contraction of the biceps.

Another example of this is shown in flexing the elbow. If this joint be flexed lifting only the weight of the forearm, the biceps is seen and felt to contract without any action of the supinator longus, and the joint can thus be kept in a position of flexion with the forearm at right angles to the vertical humerus.

Another group of muscles which I have lately observed is that of the flexors of the hip. Some of the

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muscles such as the psoas and iliacus, are too deep and can not be seen or felt to contract; but there are two, the sartorius and the rectus femoris, which are easily seen and felt. Besides flexing the thigh on the trunk, they will also flex the trunk on the thigh, if the latter be the fixed point, and it is in this movement that a differentiation can best be made out.

To show this the person should stand erect on one leg and have the other resting on a chair, with the knee and thigh flexed. The person should incline slightly forward, so as to bring the center of gravity in front of the foot on which he is standing. On then inclining backward, so as to shift the center of gravity behind the foot, the flexors of the hip of the leg resting on the chair will contract to prevent the trunk falling backward, and the only muscle which will be seen to contract is the sartorius. If then the person incline still further back the rectus femoris will be seen to act but without the vasti externus and internus. This, by the way, illustrates the point that one part of an anatomic muscle can take part in a movement and not the rest of it.

The important point is that we have no power to make the rectus contract before the sartorius. The same thing can be shown by flexing the hip when in the position of sitting down, but it is then more difficult to differentiate the muscles, as merely raising the weight of the limb is sufficient to bring out both muscles. Why the sartorius should contract first it is difficult to say, unless it be that, as it arises from the anterior superior iliac spine instead of from the anterior inferior iliac spine, it can exercise more leverage and so is more capable of fine adjustment.

These examples show that in every movement the prime movers contract in a regular orderly sequence and that the muscles successively come into action, adding to their number according to the amount of work that is required to be done.

In describing the mode of action of the prime movers which take part in any movement I raised the question some years ago[1] whether a muscle acting on a rotatory or a ball and socket joint ever takes part as a prime mover in two movements, which are diametrically opposed to each other.

To illustrate this point I will take, first, the action of the supinator longus as a pronator and a supinator of the radio-ulnar articulations; next the action of the upper or clavicular fibers of the pectoralis major, which were stated by Duchenne from electrical stimulation to be both elevators and depressors of the humerus; then the posterior fibers of the deltoid, which were stated by Duchenne also from electric stimulation to be both adductors and abductors of the hanging humerus; and, last, the action of the two sternomastoids in flexing and also extending the head and neck in the position of extreme extension.

As to the first of these examples, the supinator longus, I still consider that it does not take part in both supination and pronation—in fact, I do not think it takes part in either. The opinion which I expressed regarding the clavicular fibers of the pectoralis major as being elevators and never depressors of the humerus I am glad to find has received the approval of Merkel.[2] Next, the posterior fibers of the deltoid I consider to be adductors and never abductors of the humerus—an action about which opinions differ—and, last, the sternomastoids also are, in my opinion, never extensors of the head and neck. The muscle which might act in two opposite ways is the latissimus dorsi, the large flat muscle which extends from the iliac crest and lower half of the spine to the humerus. This muscle has always been described in the text-books as an extraordinary muscle of inspiration, but as I showed ten years ago[3] it is evidently a muscle of expiration, as any one can prove for himself by putting the fingers on the posterior fold of the axilla and giving a good cough, or, if one prefers, indulging in immoderate laughter; and it is evidently one of the muscles which are affected in Milton's line from *L'Allegro:*

> Sport that wrinkled care derides
> Laughter holding both his sides.

With regard to inspiration, I have found that this muscle does not take part in such severe dyspnea as occurs in pneumothorax or pneumonia, though it does act in the emotional movement of sobbing and yawning. With the exception of the latissimus dorsi, whose action as an inspiratory muscle I think is doubtful, I do not know of any muscle in the body which takes part as a prime mover in two actions diametrically opposed to each other.

SYNERGIC MUSCLES.

Taking next the synergic muscles, of which I have already given one example, I would say that another example is seen in the movement of extending the thumb;. here the extensors of the thumb pass over the wrist joint and would abduct this joint, but to prevent this movement, which is not wanted, the ulnar adductors, the flexor carpi ulnaris and the extensor carpi ulnaris contract and thus fix the wrist joint; so that in extending the thumb we contract at the same time the ulnar carpal muscles. Another example is that of the extension of the fingers, where the principal movers are the extensors of the fingers, and the synergic muscles are the flexors of the wrist.

In the movement of supination we have also a good example. The chief supinator is the biceps, but this muscle is also a powerful flexor of the elbow, and yet it is perfectly easy to supinate strongly without flexing the elbow. The explanation is that the biceps takes part in two movements by passing over two joints, viz., flexion of the elbow and supination of the forearm, and if only supination is required the triceps contracts as a synergic muscle and counteracts the flexion of the elbow by the biceps; so that whenever we perform strong supination only, the triceps contracts.

I have recently been examining the action of the synergic muscles in the movements of the leg, which has not, I believe, been previously observed. In flexion of the hip the sartorius acts when the movement is slight and the rectus femoris comes in when the movement becomes stronger. But the sartorius also is a flexor and a rotator in of the knee joint, and the rectus femoris is an extensor of the knee and a more powerful muscle than the sartorius. Therefore, in strong flexion of the hip when the knee is bent, the knee would tend to be extended and also to be rotated in. On carefully examining the muscles at the back of the thigh I find that in this movement the biceps contracts; this muscle, it will be remembered, is the hamstring, which arises by two heads from the femur and from the ischial tuberosity and is inserted into the head of the fibula. The in-

1. Brain, 1891, p. 51.
2. Ergebnisse der Anatomie, 1905.
3. Brit. Med. Jour., Oct. 1, 1898.

teresting point is that although its tendon becomes tense in this movement, its long head arising from the ischial tuberosity can not be felt to contract. The only actions which are here required of this muscle are flexion and rotation out of the knee, to counteract the extension of the knee by the rectus and the rotation in by the sartorius; the long head does not contract presumably because extension of the hip is not required, as it would be antagonistic to the movement we wish to perform, viz., flexion of the hip.

Again, extension of the hip is performed by the hamstrings, i. e., the biceps, semimembranosus and semitendinosus, but these muscles also flex the knee, and if the latter movement is not required, as in extending the hanging lower limb against resistance applied to the back of the thigh, the vasti contract to prevent flexion of the knee, but not the rectus femoris, as this last would also tend to flex the hip, a movement which is antagonistic to the one required.

The relation between the prime movers and the synergic muscles is very close, and it seems impossible to contract one without the other. For instance, it is not possible to extend the thumb in the slightest degree without causing a contraction of the extensor and flexor carpi ulnares, and if the prime mover be paralyzed by a lesion of the peripheral nerves the synergic muscles go on contracting and produce movements which are not intended.

As Duchenne pointed out, if the extensors of the fingers be paralyzed or weakened by a peripheral neuritis and the patient be asked to extend the fingers, the only effect is to flex the wrist by the synergic muscles, the flexors of the wrist, which go on contracting as though nothing had happened. The brain sends down a message to the two sets of muscles, and if one set—the prime movers—happens to be weak, the other set—the synergics—get their full amount and produce a movement—flexion of the wrist—which is quite different to extension of the fingers, which was required.

Apparently the brain has no power to moderate the impulse sent to the synergics to make them act proportionately to the weak prime movers. The close relation is also well shown by performing the movement of clenching the fist tightly and at the same time flexing the wrist. In the first movement the flexors of the fingers and thumb contract and also the extensors of the wrist to prevent the wrist being flexed; in the other movement the flexors of the wrist contract strongly. We have, therefore, two different movements to be carried out, and I have found that in the first movement the synergics—the extensors of the wrist—are so closely connected with the prime movers that they will continue acting and will oppose and antagonize the flexors of the wrist, the prime movers in the other movement. This opposition is the cause of the strained effort which is experienced when these two movements are performed at the same time.

The intimate relation is also shown by the fact that the synergic muscles act in all positions of the joint. Duchenne thought that the function of the synergics was to put the muscles of the prime movers in the greatest elongation in order to augument their dynamic power, but this I think can not be their true use, as is shown by the following procedure: If the thumb be extended the synergic muscles, the extensor and flexor carpi ulnares contract to prevent the wrist being abducted; if, however, the wrist be first passively abducted to the radial side; and then the thumb be extended, the synergic muscles will still contract without, however, improving the position of the joint and enabling the extensors of the wrist to work at a greater advantage.

FIXATION MUSCLES.

I have already mentioned the fixation muscles of the flexors of the finger, and I now wish to refer to the extensors of the fingers and their fixation muscles. If the wrist be in the position of pronation, and the fingers be extended against resistance, this resistance if strong enough will tend to overcome the wrist and cause it to flex. So to prevent the wrist from being flexed the extensors of the wrist take part in the movement, and to prevent the elbow being extended by the pressure the biceps contracts. It is to be observed that the extensors of the wrist and the biceps as fixation muscles do not come into action at once, but that a certain amount of resistance has first to be experienced; it seems, however, that as soon as the joints begin to be displaced by the extra pressure then the fixation muscles contract.

In the action of the extensors of the wrist as fixation muscles in the movement of extension of the fingers, an interesting clinical fact has long been observed in lead paralysis. In some cases of lead paralysis we see the following well-known condition: The patient has paralysis of the extensors of the fingers, but not of the extensors of the wrist, and if he be told to extend the wrist in the ordinary way with the fingers flexed he can do so and the tendons of the extensors of the carpus can be felt and be seen to stand out at the wrist. When, however, the patient is told to extend the wrist with the fingers straight, he gets the phalangeal joints straight by means of the interossei and lumbricales muscles which extend those joints, but he is unable to extend the metacarpo-phalangeal joints owing to paralysis of the extensors of the fingers, and the only thing which takes place, as Duchenne pointed out, is that the wrist is flexed owing to the synergic action of the flexors of the wrist, for, as I have already pointed out, whenever we wish to extend the fingers the flexors of the wrist contract to prevent the wrist being extended.

But the most interesting point is that the patient has absolutely no power to make his extensors of the wrist, which are not paralyzed, contract so long as he is trying to extend his wrist with the fingers kept straight, and no tightening of the tendons of the extensors of the wrist can be felt. This condition has been known for some time but had not been explained, and a few years ago I made some observations to see what occur in health. Such observations anyone who wishes can readily make on himself.

Put the left thumb on the back of the right wrist over the tendon of the extensor carpi radialis, and the left first finger over the right flexor carpi ulnaris just above the pisiform bone; let the right fingers remain flexed and extend the wrist, and at once the tendon of the carpi radialis can be felt to contract. If now one starts again and extends the right fingers fully one feels at once the tendon of the synergic muscle, the flexor carpi ulnaris, to contract. If the wrist be now extended, keeping the fingers extended, the flexor carpi ulnaris tendon is still taut, but the thumb does not feel any contraction on the tendon of the extensor carpi radialis, showing that all the work is done by the extensors of the fingers. But if the wrist be now extended, with the fingers extended, against resistance, it can be done by pressing the back of the fingers upward against the under surface of a

table, what will happen? After the pressure has reached a certain point the thumb will feel the extensor carpi radialis contracting, which shows that the extensors of the wrist are now assisting the extensors of the fingers to overcome the resistance which would otherwise cause the wrist to flex. The important point is that if the fingers be kept fully extended, the extensors of the wrist will not take part in the movement until the pressure to be overcome is considerable; in my own case it was as much as three or four pounds.

The fact that in health the extensors of the wrist will not take part in the movement of extending the wrist, until there is a fear that the resistance of the wrist will be overcome, places these muscles in the category of fixation muscles, which, as I have already mentioned, do not take part in a movement until there is a certain amount of stress on the joint. In lead paralysis the patient tries to extend his fingers and manages to extend the phalangeal joints by the interossei and lumbricales, but he has no power to contract the paralyzed extensors of the fingers and to produce the tension of three pounds which is necessary to bring into the movement the action of the extensors of the wrist.

The interesting point is that the patient has no power to make the extensors of the wrist contract so long as they are in a secondary position as fixation muscles, but they can do so at once as prime movers.

Another instance of fixation muscles is the contraction of the muscles of the upper arm, which occurs when the fingers and thumb flex in the movement of grasping an object. The flexors of the fingers, arising as they do from the internal condyle of the humerus, have a slight action of flexing the elbow and, especially when the elbow is at a right angle, to prevent this flexion and to steady the elbow joint the triceps contracts, but, like other fixation muscles, it does not contract until a certain amount of displacement takes place. In my own case I can not feel the triceps contract until the dynamometer has registered a grasp of from six to ten pound (3-5 kgs.).

In describing the action of the prime movers I have made mention of the muscles which produce exactly the opposite movement, viz., their antagonists.

For instance, in the movement of flexion of the fingers the antagonists are the extensors of the fingers (but not the extensors of the wrist which are synergic muscles), and in the movement of flexion of the elbow the antagonists are the triceps and anconeus. I do not propose to give you the history of the action of the antagonists and the antagonism which they have given rise to among authors. I would merely say that I think Galen was right and that Winslow and Duchenne were wrong in their ideas of the subject.

Beaunis[4] and Demeny,[5] by means of Marey's myographs, showed that the antagonists relax when any resistance is made to a movement, but that in natural movements (when there is no resistance) and which are at a slow and uniform rate, there occurs a simultaneous action of the antagonists. According to Winslow, who thought that "to move any part . . . all the muscles belonging to it must cooperate," the want of action of the antagonists is in many cases supplied by the weight of the part to which they are fixed or by additional weight. This would mean that when gravity is acting on a limb or a weight is being lifted the antagonists do not act. Therefore, the only time that the antagonists might act is in unopposed movements when gravity is not acting. I have pointed out in a previous communication[6] that the movements of rotation of the head in the erect position are particularly adapted to determine this point, as they are unopposed and not acted on by gravity, and that in rotation of the head by one sternomastoid no contraction can be felt or seen in its antagonist, the other sternomastoid.

In some unopposed movements, which are required to be suddenly stopped, the antagonists certainly do act, but not in opposed movements, as every one experiences when he makes a great effort to lift an empty can which he thinks is full of water, with the result that he lifts it suddenly much higher than was intended.

Professor Sherrington[7] has shown by numerous experiments that electric stimulation of the excitable cerebral cortex not only produces a definite movement by causing contraction of the muscles directly taking part in the movement, but also produces corresponding relaxation of the antagonists by inhibiting their tone, and this occurs with even minimal stimulation.

But perhaps some may say, what does it matter whether the antagonists contract or relax, and does any practical use come from the knowledge? Apart from the dictum that every observation which is correct is worth recording, I do consider that this question of the relaxation of the antagonists is even of practical use to us. It is sometimes very difficult to get a patient to relax certain muscles which we wish to examine, as, for instance, the deltoid muscle—an abductor of the shoulder—when we may wish to know whether the patient is able to abduct the humerus or not, or whether the inability to move the shoulder is due to a rheumatic joint. For this purpose it is only necessary to ask the patient to put the adductor muscles into action, and to strongly adduct the humerus against resistance, when the deltoid will be relaxed. The muscle can then be freely moved between the finger and thumb, and on then telling the patient to abduct his humerus it will be possible to tell at once whether the muscle is capable of contraction or not.

Another use of this knowledge of the relaxation of the antagonists is that in a certain class of cases this relaxation of the antagonists which should normally occur does not do so. About five years ago I described the following condition which occurred in a case of functional paralysis in a girl: She had partial hemiplegia, and when she was told to extend the affected elbow against resistance, in place of the extensor muscles contracting, and the antagonists—biceps, brachialis anticus and supinator longus—relaxing, the antagonists actually contracted first, and the first movement took place in the biceps and supinator longus. This was followed by contraction of the triceps and again by the biceps, giving rise to the to-and-fro hesitating movement which is so characteristic of attempted movements in functional cases.

Since seeing this first case I have come across many cases of functional paralysis showing the same inability to inhibit the antagonists. This condition can also be well seen in the knee; for this purpose the patient lies with the face downward and the leg is put at right angles to the thigh and the patient is directed to extend the knee against resistance. Normally the hamstrings

4. Arch. de Physiol., 5th series, I, 1889.
5. Arch. de Physiol., 5th series, II, 1890
6. Croonian Lectures, 1904, p. 54.
7. Proc. Roy. Soc., vol. lxxvi, B., 1905.

should be relaxed at once, but in these cases these muscles can be seen and felt to contract along with the extensors.

In the ankle joint the same thing can be seen, by telling the patient to dorso-flex the ankle against resistance. In a normal person the antagonists—the calf muscles—would be relaxed, but in these cases the Achilles tendon can be felt to tighten in place of being relaxed. In all these cases it is necessary for the observer to fix the limb and prevent it moving; otherwise, as the joint is extended or flexed, the antagonists may be passively drawn on and give the impression that their muscles are actively contracting.

What, then, is the significance of this action of the antagonists? The first time that I observed this contraction of the antagonists was seven years ago, in the case to which I have already referred, and which I considered to be hysterical or functional and in which there were no signs of organic disease of the nervous system. It has been considered by some observers, notably by Buzzard, that some of these cases of functional paralysis may be the first stages of disseminated sclerosis, and I have been waiting to see if any of these cases should eventually shows signs of this disease. I have lately had the opportunity of seeing again my first patient, and I find that she does not show after seven years any symptom of sclerosis. There is no nystagmus, no intention tremor, no increase of the deep reflexes and the plantar reflex is of the flexor type.

As I have never seen this condition in disseminated sclerosis or in any other organic disease of the nervous system I consider it to be a symptom of functional disease as opposed to organic. Moreover, I look on this condition as probably the first stage of what is known as hysterical contracture. In hysterical contracture all the muscles—the flexors as well as the extensors—are in a state of tonic contraction, so that the limb is rigid and resists any movement either by flexion or extension. It seems probable that if this intermittent contraction of the prime movers and the antagonists were to become permanent we should have the condition of tonic contraction of all the muscles which goes to produce a general contracture. I have observed that under appropriate treatment, isolation and faradization, this undue action of the antagonists gradually passes off and the muscles return to their natural condition with relaxation of the antagonists when any voluntary movement is performed.

In relation to this condition of the contraction of the antagonists I would call attention to some observations of Sherrington,[8] who, as I stated above, has found that when any particular movement, such as flexion of the elbow, is produced by electrical stimulation of the motor area in the cortex of the monkey, the antagonists are not only relaxed, but their tone is diminished. Recently, however, he has found that under the action of strychnin or of tetanus toxin the antagonists are not relaxed, but, on the contrary, the inhibition which usually takes place is converted into an excitation. We thus have synchronous excitation of antagonistic muscles, and this explains the simultaneous contraction of large inharmonious groups of muscles in strychnin convulsions.

Another point of interest is that in both strychnin and tetanus-toxin poisoning, and as also in functional conditions, the character of the convulsive attacks which are liable to occur is that of overaction of the extensors producing the well-known symptom of opisthotonus and forming in the latter condition the hysterical *arc en cercle* of Charcot and his school. I do not wish to push the analogy too far, but I would merely point out that it is curious that the two conditions in which we obtain the absence of the inhibition of the antagonists and also the presence of convulsive attacks in which the extensors of the spine are strongly involved, are obtained in functional (i. e., hysterical) cases, and also in poisoning by tetanus toxin and strychnin. I suppose that in each case the cause is a loss of control.

According to Sherrington, tetanus and strychnin poisoning "work havoc with the coordinating mechanisms of the central nervous system because in regard to certain great groups of musculature they change the reciprocal inhibitions, normally assured by the central nervous mechanism, into excitations." Sherrington thinks that the reactions elicitable from the cortex cerebri under strychnin are due not to the action of this agent on the cortex but by alterations produced in the spinal and bulbar centers on which the cortex acts. He also states that in other fields of action, as in the arcs of purely sensual and perceptual level, one cortical element may inhibit another cortical element. It seems more probable that in so-called hysterical paralysis the loss of control takes place in the cerebral cortex rather than in the spinal cord and that this loss of control transforms the inhibition of the antagonists into excitation of these muscles.

We have now to sum up the various muscles taking part in a movement and to consider where in the nervous system these muscles are linked together.

We may have, therefore, in any single movement such as the closure of the hand the following classes of muscles taking part: The prime or principal movers, the flexors of the fingers and thumb; the synergic muscles, the extensors of the wrist; and the fixation muscles, the triceps and biceps. The principal movers frequently consist of two or more muscles, and these muscles, as in the case of the flexors of the elbow and of the extensors of the hip, come into action in a definite order according to the amount of work required to be performed, and, further, it seems that the will has no power to alter this order or to make a muscle act out of its turn (except perhaps by trained exercises). Again, in those muscles which have two or more movements by passing over two or more joints, the synergic muscles come into action at the same time as the principal movers, and here again the will has no power to prevent these muscles acting or to leave them out of the list. Lastly we have the fixation muscles, which fix the joint or joints intervening between the joint under examination and the trunk and which do not come into action until a certain pressure and displacement has been brought to bear on the joint.

The question which we have now to consider is in what part of the nervous system are these groups of muscles linked together as to form a movement? There are two places where this may take place—in the spinal cord and in the motor cortex. Now, if we start from the muscles and follow up the motor nerves, where in the nervous system is the first station where such an arrangement of cells exists by which the ultimate component muscles can be combined to form one movement?

It has been shown by the experiments of Sherrington and of May that in the spinal cord coordinated movements can be obtained reflexly in the monkey by stimu-

8. Proc. Roy. Soc., 1905, vol. B., 76.

lating the posterior roots, or the different areas of skin supplied by these roots. According to Sherrington,[7] the inhibition of the antagonists which occurs on stimulation of a peripheral nerve or by excitation of the cortex cerebri, appears in both cases with some likelihood to lie in an internuncial mechanism—synapse or neurone—between the afferent and efferent neurones. He, therefore, thinks with Exner[9] that in the cortical movements the inhibitory phenomena have their chief seat in the spinal mechanisms though elicited from the cortex. Sherrington and Hering also found on stimulating the cut across the internal capsule that the spot where the triceps was inhibited corresponded exactly to the place where the biceps was stimulated to contract.

In favor of the lowest station for cortical movements being in the spinal cord and not in the cortex are the following considerations: There is a mechanism in the cord by which muscles can be coordinated to produce definite movements and by which their antagonists can be inhibited. Coordinated movements with inhibition of the antagonists can be obtained from stimulating the internal capsule similar to those from the cortex cerebri. It is not possible to produce contraction of single muscles by stimulation of the cortex or internal capsule.

Also in a previous communication[10] I have described a case of hemiplegia in which the patient had the power of grasping but had no power to extend the wrist or to extend the elbow in prime movements. When, however, he grasped an object the extensors of the wrist and the extensor of the elbow were put into action, as synergic and fixation muscles, although they could not be made to contract as prime movers. In this case all the muscles taking part in the movement of grasping, even the fixation muscles, were coordinated into action, but these same muscles were paralyzed, when they took part in another movement, where they were prime movers. This showed that these muscles were coordinated at some point below the internal apex.

Further it was found by Ferrier that the coordinated movement of clenching the fist, in which the flexors of the fingers and thumb and the extensors of the wrist took part, could be obtained from stimulation of the motor cortex in the monkey, and Sir Victor Horsley and myself also found the same movement from stimulation of the internal capsule in the monkey.

It hase been considered by some observers—among others by O. Foerster—that this linkage of the ultimate components of a movement takes place in the motor cerebral cortex and that single muscles and not movements are represented in the cortex. This is a doctrine with which I can not agree, as I hold fast to the opinions of John Hunter and Duchenne and particularly of Hughlings Jackson, that "nervous centers know nothing of muscles; they only know of movements."

If the motor cortex were the lowest station, where these muscles are linked together to produce one movement, it would hardly be possible to get the simultaneous action of the flexors of the thumb and fingers together with the synergic action of the extensors of the wrist from stimulation of the internal capsule; and if every combination between different muscles had to be arranged in the cortex and impulses had to be sent from the cortex to each separate muscle the number of fibers required to transmit the various combinations would be much more than is provided for by the internal capsule and the pyramidal tracts.

It seems to me that all the evidence is in favor of the linkage of the ultimate constituents of a movement being in the spinal cord. It has been shown by von Monakow[11] and by Schafer[12] that the pyramidal fibers end in the gray matter at the base of the posterior horns and not in the anterior horns, as was formerly thought, and that probably there exist intermediate cells between the ending of the pyramidal fiber and the anterior cornual cell, and that these have the power to bring about associated movements. A clinical fact which throws light on this subject is mentioned by Foerster[13] as occurring in locomotor ataxia, and it is a condition which I can corroborate. In cases in which there is loss of the sense of position in the upper limbs, if the patient be asked to clench the fist with the eyes open he can do so in a normal manner, but if he tries to do it with the eyes closed the wrist will be flexed at the same time, owing to the want of action of the synergic extensors of the wrist. The reason of this seems to be that the proper combination of the principal movers and of the synergic muscles can not take place if the posterior cornua are affected as they are in some cases of tabes, and the faulty position has to be rectified when the patient has his eyes open by a voluntary extension of the wrist. This, I think, is evidence that the lowest station where these muscles are linked together for a voluntary movement is in the spinal cord. Whether the mechanism by which these voluntary movements are produced is identical with that used for reflex movements is, I think, uncertain.

It therefore seems probable that the mechanism by which the muscles taking part in a single movement are linked together, is situated in the cells of the posterior cornua of the spinal cord, which cells are acted on by impulses from the excitable cerebral cortex. Take, for instance, the action of supination of the foramen. If only a weak action is required as in simply moving the limb, the impulse coming to the posterior cornual cells is weak, and these cells send a message to the anterior cornual cells of the supinator brevis only. If stronger action is required, a stronger impulse is sent to the posterior cornual cells which stimulate the anterior cornual cells of the biceps, and at the same time those of the triceps which act synergically to prevent the elbow from being flexed by the biceps. If a stronger movement still is required the fixation muscles, viz.: the adductors of the shoulder are brought into action by the posterior cornual cells to prevent the humerus being drawn away from the trunk by the very strong pressure to be overcome.

A very good simile is that of an engine room on board an ocean liner. The captain on the bridge sends down messages to the engine room and his orders are put into action by the engineer, but the captain has nothing to do with the mechanism of turning on the particular steam cocks, etc. The captain also gives messages to the man at the wheel, who puts in action the steam steering gear. The captain on the bridge represents the cerebral mechanism, including the motor area, and the engineer represents the posterior cornual cells and turns on the proper amount of steam. The captain does not know what is going on in the engine room, except by his orders being properly carried out,

9. Pflüger's Arch., xxviii.
10. Croonian Lectures, 1903.
11. Arch. für Psych., 1895. Bd. xxvii.
12. Proc. Physiol. Soc., Jour. of Phys., 1899. xxiv.
13. Die Physiologie und Pathologie der Coordination, 1902.

and likewise the brain knows nothing about how the movements are done. If the ship have twin-screws and be driven by turbines, then the engines for going astern will constitute the antagonists to the prime movers for going ahead. The rudder will represent the synergic muscles, and if it be required to turn the ship to the right the rudder will be used to counteract the action of the right screw, which is not required. If the rudder does not act the ship performs a movement, which the captain did not intend, and if the synergic muscle be paralyzed the movement, which the brain ordered, is wrongly carried out, and neither the captain nor the brain knows that it will happen, as the block takes place either in the engine room or at the periphery from the breaking of a screw shaft, i. e., in the anterior horns or in peripheral nerves.

On the other hand, if the mechanism for coordinating the muscles took place entirely in the brain, it would mean that the captain would have to manage all the machinery of the engine room—which would have to be on deck—and would himself have to turn on the necessary steam cocks, and at the same time he would have to steer the ship himself.

135 Harley Street, Cavendish Square, W.

DISCUSSION.

DR. CHARLES K. MILLS, Philadelphia: Dr. Beevor's illustration of the manner in which movements occur and are coordinated is an appealing one, but at the same time (as in all our efforts to illustrate problems of philosophy or biology) by comparison there may be present some little source of fallacy. The cerebral cortex, I think, at least takes part in the regulation of the manner in which the movements which are coordinated and are arranged for outward expression in the spinal cord occur. Dr. Beevor has by his presentation of the subject of the non-relaxation, or action contrary to intention, of antagonistic muscles in hysterical subjects, given us a valuable addition to our methods of making a diagnosis of hysteria from organic disease.

DR. F. X. DERCUM, Philadelphia: While familiar in a way with Sherrington's results, I was not prepared for the beautiful exposition of muscular movements to which we have just listened. The fact that in a hysterical palsy or hysterical contracture the opponent muscles do not relax is of great practical value—a sign which, like the Babinski sign, will prove useful in differentiating between functional and organic palsies. In regard to the localization of the co-ordinating function. I am inclined to accept Dr. Beevor's view, that the cortex represents the motion only and has nothing to do with the muscles.

What rôle does Dr. Beevor assign to the cerebellum in this beautiful play of action between the cortex and the associations in the spinal cord?

DR. HUGH T. PATRICK, Chicago: There is one muscular sign which Dr. Beevor was the first to observe and describe, that is, the excursion upward of the umbilicus in some cases of paraplegia. Within a week I have had opportunity to observe it in two cases. In one case the sign was not particularly useful because the sensory symptoms made the spinal localization easy; but in the other case there were no sensory symptoms, and the only means of ascertaining the level of the cord where this lesion was, causing complete paraplegia, was what, I believe, Dr. Beevor calls the umbilicus sign. In a severe lesion of the cord at about the tenth dorsal segment, of course the muscles of the abdomen above that level are not paralyzed, and those below that level are. Consequently, with the patient recumbent, if the arms are folded across the chest, and the patient raises the head off the pillow, or perhaps a little better attempts to raise the shoulders, the recti muscles above the umbilicus contract, the recti muscles below can not contract and the umbilicus moves upward one-half an inch, three-fourths of an inch, even an inch. In a case in which the sensory symptoms are not so distinct as to make the level apparent, this sign practically settles the localization. For instance, in a case of spinal tumor with sufficient pressure on the cord to cause paraplegia, with no marked anesthesia, but with imminent danger of destruction of the cord, and with no deformity whatsoever, this Beevor's umbilicus sign tells us just where the tumor is, where the incision should be made, which laminæ are to be removed to expose the tumor.

DR. MORTON PRINCE, Boston: I recall a number of facts of which Dr. Beevor has not spoken, which are entirely in accord with his main proposition, that is, that this linking together, this association at least, of these movements, is to be found in the spinal cord rather than in the brain. This association, this co-ordination of movements in a certain part of the nervous system, reduced to its simplest terms, is in the final analysis memory.

Since the great classical work of Herring we all know that memory is not simply a conscious attribute, but an attribute of all living matter, of a cell, and the spinal cord as well as of the brain; and therefore, when Dr. Beevor points out that this linking together may be in the spinal cord in such a way as to be reproduced on a certain stimulus from the brain, all he means to say, of course, is that the spinal cord possesses memory, which is well known. The memory of these primary movements and these synergic movements, and of these movements which are a part of all organic matter, is particularly within the function of the spinal cord. Witness the classical experiment of the movements obtained by stimuli applied to a decapitated frog, which is nothing more than the reproduction of these primary and synergic movements; also the experiments of Charington and another on the brainless dog, in which they obtained movements of running, jumping and leaping, all representing these movements which Dr. Beevor has explained, and which, therefore, must be organized and linked together as memories in the spinal cord or in other ganglia. We have a mechanism by which this all can take place in the center below that of the brain; and this fact seems in harmony with the fact that so very few fibers coming down through the foraminal tract can produce this vast variety of movements which we know emanates from below, from the cord. Dr. Beevor's theory of that particular phenomenon which he found in hysteria, namely, the contraction of the antagonistic muscle from lack of inhibition of that antagonistic muscle in hysteria, is entirely in accord with the entire lack of inhibition observed in hysteria.

DR. WILLIAM G. SPILLER, Philadelphia: I think that in associated movements in another sense, conclusions confirming Dr. Beevor's findings might be drawn. Where, for example, the left upper limb is paralyzed and the man has little control of it, yet there is occasionally seen an associated movement of the right and left upper limbs; as, for example, when the patient closes the right hand, the left closes involuntarily. It is reasonable to believe that associated movements, especially those of a reflex character, at least in part, depend on centers below the cortex, as it is produced even when the right side is cut off from the brain. Goltz's dog ran after the cerebrum was removed. Babinski has stated that it is common in hysteria for the antagonistic muscles to be contracted. Does Dr. Beevor regard that contraction of the antagonistic muscles which he says occurs in hysteria, as the result of suggestion? Babinski holds that all hysterical phenomena are produced by suggestion.

DR. D. I. WOLFSTEIN, Cincinnati: I once saw Oppenheim differentiate a case of multiple sclerosis from hysteria by the suspected ankle clonus which resulted. The other physicians had considered the movements that they got on the plantar portion of the foot as a distinct dorsal ankle clonus, whereas Oppenheim showed that the movement was upward instead of downward. It would be interesting to know whether that has anything to do with the innervation from the cortex. It seems to me that we must invest the cortex cerebri with an intelligent controlling influence.

In the case of the decapitated frog, when we take a piece of paper and wet it with acid and put it on the back, and see the frog make apparently intelligent motions—just as

intelligent probably as if it had a cortex left—what we do see is that there is an excess of somewhat uncontrolled motion resulting in the frog's efforts to liberate itself from the irritation; and it seems to me that the rôle of the cerebrum would be the proper gradation of the exact amount of movement, and the exact amount of force, that is required in stimulating the antagonists and protagonists to produce the proper action.

DR. H. A. TOMLINSON, St. Peter: In my study of the reflexes in newborn babies, I made some observations that tend to confirm the conclusions of Dr. Beevor. In the newborn child the muscles of prehension and locomotion are flexed, and the extremities are flexed and adducted, while the trunk muscles are relaxed. Combinations of reflexes are begun by bringing into play the synergic muscles, then the fixation muscles, and finally the extension or antagonistic muscles. In all coordinate combinations of the reflexes it is fixation and extension that accomplish the movement; so that what I have described as the sequence in the building up of a compound reflex, Dr. Beevor has observed as the sequence in the carrying out of single muscular movements in the adult.

DR. M. ALLEN STARR, New York: I consider the matter of differentiation between the organic and the functional type of movement a very valuable point in connection with Dr. Beevor's observation. Possibly his observations have a tendency to confirm a position advanced in 1904 by Lapinsky in the *Deutsche Zeitschrift für Nervenheilkunde*. We have always been taught that each group of cells in the cord is related to a muscle, and that when that muscle moves that one group of cells is called into play. Lapinsky took the position that each group of cells in the spinal cord is not related to a muscle, but to a movement; and that therefore, when I flex my fist I do so by sending a cortical impulse down through the pyramidal tract to a group of cells, which group of cells is thrown into activity and innervates the various muscles; and he substantiated this position by citing the well-known fact that a single group of cells sends out its motor neurons to the anterior motor nerve roots; those motor nerve roots split up in the various plexuses; consequently a given group of cells of the spinal cord sends out impulses to a great number of different muscles. I have seen no reference to this interesting theory, opposed, as you see, to all our doctrines of the relations of spinal functions, and the relations of groups of cells to groups of muscles; but it seems to me important in connection with these observations of Dr. Beevor, for it supplies us immediately with the spinal mechanism which will explain the action of these various muscles without forming a connection between the pyramidal tract and the group of cells in the cord—a hypothetical group of cells in the posterior horns of the cord which he brings in—hypothetical, because we do not know of groups of cells in that portion of the tract. Therefore, this theory of Lapinsky would substantiate in that way Dr. Beevor's conclusion, giving us a physico-anatomic basis for the findings that Dr. Beevor has made from the physiologic side.

DR. CHARLES K. MILLS, Philadelphia: Taking Dr. Beevor's illustration of the captain and the engineer and the machinery; has not a given region of the cerebral cortex the power, so to speak, to elect that a simple movement, a movement less simple, a complicated and a more and more complicated movement, shall be performed by the machinery, whatever it is, in the lower levels of the nervous system; and if this be the case in the sense in which we ordinarily use our words in describing cerebral localization, do not given regions of the cerebral cortex even represent the prime and synergic and antagonistic and all of these coordinated movements? That seems to me the crucial question in this discussion.

DR. JULIUS GRINKER, Chicago: Has Dr. Beevor included in his beautiful experiments the involuntary contractions of single muscles and the disorders of associated movements which are regular phenomena of Sydenham's chorea? Most writers on chorea place the disease either in the cerebellar cortex or in the cerebrum. Otto Foerster, who has made an extensive study of the motor phenomena of chorea, places the disorder in the cerebellum. He says that whenever a movement is conceived in the cortex, two impulses are sent out, one through the pyramidal tract (this neuron arborizes around the anterior horn of the cell) and another impulse is sent by way of the cerebellum, to which organ he assigns the rôle of coordinating the movement conceived in the motor cortex. Both movements reach the same cell, one from the cortex of the cerebral motor area, the other somewhere from the frontal lobe by way of the cerebellum and into the anterolateral region, eventually arborizing around the motor cell. He explains chorea as a disorder of the cerebellum which frustrates the plans of the voluntary impulse by either producing a useless movement, namely, contracting the antagonists rather than the so-called agonists or the synergists; the result being just exactly the opposite of what was intended; or, he thinks possibly, the impulse is side-tracked and some other muscles than those intended, contract. Of course he is unable to substantiate the opinion by pathologic proof.

DR. ARCHIBALD CHURCH, Chicago: I believe that the so-called spurious foot clonus of hysteria may bear on the conclusions in Dr. Beevor's paper. In such cases there is always a contraction of muscles on the front of the leg when developing the clonus. In organic clonus, as from a spinal or cerebral lesion, I have failed to see the participation of the muscles on the front of the leg; and Dr. Beevor's exposition seems to substantiate my observation as to the participation of antagonists in this particular hysterical condition. I have noticed that the primary attempt of children in grasping an object is one of extension of the wrist, and I have thought this a reversionary element, that extension must precede prehension, but Dr. Beevor's wonderfully lucid and clear exposition would indicate another application of this idea of the orderly arrangement of muscular action in the simplest movement.

DR. ALBERT E. STERNE, Indianapolis: We have always been, I believe rightly, accustomed to consider the cerebral cortical centers as those which originate impulses. The centers lower down in the spinal axis are in their functions probably wholly inhibitive and guiding. We must not forget that in the scale of evolution the centers high up are those which gain in dignity, and that the centers which we commonly look on as being the lower centers are those which in the lower type of animals come into greater prominence. It seems to me that it is but natural in the process of evolution that much of the function which is present in lower animals (practically an automatic function) should exist to a very great degree in human beings. I believe that the theory and the application of the theory which Dr. Beevor has placed before us may well embrace the mass of known facts that we have before us, and I feel as nearly sure as possible, that most known phenomena will fit in with the ideas presented in Dr. Beevor's most interesting and remarkable paper.

DR. CHARLES E. BEEVOR: I do not want to bring in the subject of cerebral movements, but to consider exclusively one single movement; therefore, I have not taken up the consideration of the combination or coordination of several movements, such for instance, as we find in the act of walking. Considering one movement only, the question is where the muscles are joined together and combined to form this movement, whether it is in the spinal cord, or whether it is in the cortex. I always considered it in the spinal cord until I read that matter up and found that some people thought it might be in the brain. If it is in the brain or cortex you ought to get a single movement of the single muscle by itself, that is a movement of the biceps without the movement of any other muscle; but I have never seen that occur.

Then the question is with reference to a single movement. Messages are sent down from the cortex. I agree with Dr. Mills that the cortex has the power of combining movements; but it seems to me that in a single movement like extension of the thumb, the muscles are all combined together in the spinal cord, and especially in the posterior horns, and that a message sent down is not sent to every individual muscle,

but to a set of the cells of the posterior horn, which has the power of bringing in muscles one after another, according to the amount of stimulation sent down; but any combination of movements would necessarily take place in the cortex to start with. It would otherwise be necessary to send down a vast multitude of fibers; you would want to send down a fiber to the flexors of the finger, and another to the extensors to the wrist and to the fixation muscles; if you consider the various combinations, a pyramidal tract and internal capsule of immense size would really be necessary. The captain sends down one message, "Go ahead;" he does not tell the engineer how much steam power to use, nor does he attend to any of the details; and all the details are attended to in the engine-room and elsewhere.

Of course I have not taken the cerebellum into account, because I have only taken a single muscle and not a combination. The cerebellum is the center where movements of balance take place, but you can not balance with only one muscle.

I do not know anything about the corpus striatum. As to whether it is excitable or not, people differ. In some work I did with Victor Horsley some years ago, we stimulated the corpus striatum with negative results. We found that if we got near to the internal capsule we got movements, and the movements were precisely the same as we got from the internal capsule only less in degree, and weaker and weaker the further from the internal capsule we got.

Therefore we concluded that there is no evidence that the corpus is excitable, and the result was really due to the stimulation of the internal capsule. Dr. Prince and I agree that it may be a question of memory. I agree also that want of inhibition is the great point in hysteria.

At a meeting in Berne I saw a dog without any cerebrum running about, but that can not occur with a monkey. Goltz used a dog and Fourier used a monkey, and of course they could not agree. I think the monkey is nearer to man than he is to the dog. I think that want of control not suggestion is concerned with hysteria. The movements of the frog trying to rub off an irritating substance is a matter of the co-ordination of several muscles—a matter which I have not been considering.

I studied a number of newborn children to see whether in the youngest child coordination took place—that is, whether when the child grasps, the hand goes round or not, and I think in about half the cases the arm muscle went around, and in the other half it did not. Dr. Robinson showed years ago that you can hang up a newborn child by the hands and it will hold on to a rail.

I once thought that coordination of muscular movement takes place in the anterior horns, but I have come to the conclusion that probably it takes place in the posterior horns.

In regard to chorea I have not induced the antagonist to act in the same way. But there again it is a question of combined movements and not one single movement. No doubt the patient performs the wrong movement, but it is a wrong movement as a rule, and not an antagonistic movement.

I have observed that the muscles in front of the leg contract in ankle clonus, as Dr. Church observes.

Serum Sickness from Antitoxin Treatment of Tetanus.—Savariaud reports in the *Tribune Médicale*, June 13, the case of a girl of 8 who scraped her knee in falling on the gravel and three days later began to limp and was brought to him. Besides rest and simple local measures he advised an injection of antitetanus serum, assuring the family that it was absolutely harmless. Five days after a second injection, at the tenth day, severe pains developed in the joints and the child could scarcely move her neck and limbs, while especially on the forearms and in the inguinal and axillary regions erythematous patches suggested an eruptive disease. The eruption subsided in fifteen hours, but fever persisted for six days and the pains in the joints for four or five. He cites a few cases of similar disturbances from serum treatment, observed in France, remarking that these accidents are neither frequent nor serious, but that their possibility must be borne in mind.

Original Articles

INSANITIES CAUSED BY ACUTE AND CHRONIC INTOXICATIONS WITH OPIUM AND COCAIN.

A STUDY OF 171 CASES. SUGGESTIONS FOR LEGISLATIVE AND OTHER MEASURES. THE QUESTION OF RESPONSIBILITY.*

ALFRED GORDON, M.D.

Associate in Nervous and Mental Diseases, Jefferson Medical College; Neurologist to Mount Sinai Hospital, Douglass Memorial Hospital and Northwestern General Hospital.

PHILADELPHIA.

During the last seven years I have been collecting cases of intoxication with morphin and cocain. The majority are cases observed in hospitals. Confining myself to the effect of the drugs on the cerebral functions, and especially on the mentality, I am able to divide the 171 cases into two groups, viz.: 80 of acute and 91 of chronic poisoning. The first group comprises 60 cases of morphin, 15 of cocain and 5 of mixed intoxication. The second group is composed of 70 morphin habitués, 10 cocain habitués and 11 patients with mixed intoxication.

The permanent effect of the poison did not depend altogether on the mode of its administration or amount absorbed. For a normal adult 6 or 7 cgm. hypodermically constitute a toxic dose, but individual susceptibility should be taken into consideration. Cases of recovery have been reported even with doses of 75 cgm. of morphin.

Habit is very rapidly established.

FIRST GROUP.—A. ACUTE INTOXICATION WITH OPIUM OR MORPHIN (SIXTY CASES).

In this category are placed patients who showed signs of intoxication even after one dose of the drug. When the dose is not immediately fatal, there is at first some agitation without delirium. The patient is loquacious. The mental faculties are stimulated. There is a feeling of beatitude, of euphoria. Soon heaviness of the head and vertigo make their appearance. The latter is followed by somnolence. The general sensations and special sensorium become obtunded, the patient enters into a profound sleep during which death may ensue. In grave cases the respiration is slow, viz., five or six respiratory movements a minute. The pulse is small, irregular; the face is congested, the temperature is lowered. Urine decreases in quantity. Convulsions occur during the last period. In five cases somnolence was absent and the agitation of the first period persisted and was accompanied by a delirium with terrifying hallucinations of sight and hearing.

In seven cases the terminal coma gradually disappeared. The patients regained consciousness and apparently recovered, when at the end of 12, 24 and 36 hours a new attack of coma supervened with rapid death. It is probable that a new absorption of the poison occurred which during a number of hours remained inactive in some portion of the digestive tract.

Recovery may follow even after long hours of coma. During convalescence are observed vertigo, mental hebetude, temporary aphasia or blindness, and many

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.

other physical manifestations, including such as constipation, vomiting, retention of urine, albuminuria and myosis.

Fifty-two patients in my series of acute intoxication recovered. Thirty-five presented for weeks mental disturbances deserving special attention. They showed slowness of thought and difficulty of grasping complicated subjects. Questions had to be repeated a number of times before they could comprehend them. There was striking mental fatigue. All these patients were particularly annoyed by dreams, which in the majority of cases were of a pleasant nature.

These thirty-five patients used about the same amount of opium or morphin as the seventeen who did not present prolonged mental disturbances. Some of them had only one dose, others two or three doses, and still others a daily dose for a week. There was no direct relation between the amount taken and the symptoms. For example, some of the thirty-five patients who presented prolonged mental disturbances used a smaller amount of morphin than those who recovered promptly. The question is, therefore, one of individual susceptibility. Nevertheless, it is well to remember that even one large dose is likely to disturb the mental functions for a period of several weeks.

FIRST GROUP.—B. ACUTE COCAIN INTOXICATION (FIFTEEN CASES).

As soon as cocain enters the general circulation it acts on the brain and spinal cord.

Precordial pain, rapid and filiform pulse, lividity of the face, cold extremities, cold perspiration, Cheyne-Stokes respiration and anuria are the immediate symptoms. The mental manifestations in nine of my cases were mainly excitation, restlessness, loquacity, crying or anger.

In six cases there was a state of depression and a semistuporous condition, accompanied by nausea, tachycardia, mydriasis and abundant perspiration. In all there was a certain degree of vertigo with ataxia in gait and peculiar hallucinations. The latter were visual and tactile. The visual consisted of black insects and rats. The tactile hallucinations were a tingling, pinching and the sense of holding imaginable objects in the hands.

Four of my patients had generalized convulsive seizures without a previous history of epilepsy. The seizures were followed by a semicomatose state, lasting from one to three days.

Nine patients recovered completely. Two died at the end of twenty-four hours and four days, respectively. The first swallowed, with suicidal intent, eight grains of cocain. His cerebral symptoms were stupor and hallucinations. He died in syncope. The other patient, also suicidal, lived four days with symptoms of extreme agitation, delirium and hallucinations. He died from exhaustion.

The four patients who presented epileptiform attacks, although they eventually recovered, nevertheless for six subsequent weeks suffered from insomnia, anorexia, diarrhea, vertigo and attacks of delirium. One was unable to resume his occupation of office clerk for six months; his memory was deficient and he could not solve the simplest mathematical problems without making mistakes. His intoxication followed two injections of cocain into the gum for some alveolar operation. The dose could not be determined.

FIRST GROUP.—C. ACUTE MIXED INTOXICATION (FIVE CASES).

The intoxication followed external application of cocain (snuff) and internal administration of laudanum (two cases), also a hypodermic injection of morphin (one case) (for relief of an attack of tic douloureux), together with an external application of 10 per cent. cocain to the cheek, which had erosions. Two medical students, suffering from a severe coryza, used a 15 per cent. cocain solution as a spray and ½ grain of morphin internally.

The most prominent symptoms in all five cases was a very marked stuporous state with paroxysms of delirium and visual hallucinations. The tactile hallucinations characteristic of cocain intoxication were absent. Myosis, constipation, anuria, coldness of the extremities and difficult respiration were also present.

When the acute symptoms disappeared, a mental dulness, apathy, remained for two weeks in one case and for seven weeks in four cases. Eventually all the patients recovered.

SECOND GROUP.—A. CHRONIC INTOXICATION WITH MORPHIN AND OPIUM (SEVENTY CASES).

In considering the manifestations of morphinism I made a comparative study of cases of months' and years' duration.

Twenty cases ranged between two and eight months, and fifty cases between two and twenty-two years of chronic intoxication.

The majority of the patients used morphin; some, however, took opium. Among the latter I had eleven men, of whom six took internally and five smoked opium, with five women who smoked opium and six women who drank laudanum daily.

Morphin was used mostly hypodermically, but in some cases also by the mouth. The amount varied from eight grains to fifty grains of morphin, internally or hypodermically, or from three to twelve drams of laudanum. The amount of smoked opium could not be determined.

The effect of morphinism is somewhat different from abstention from morphin or opium. I had the opportunity to study twenty-six cases during the period of abstention. Speaking generally, the ultimate effect of chronic abuse of opium and morphin is practically the same.

The twenty cases in which the intoxication lasted only months and the fifty cases in which the intoxication lasted years presented but slight differences. In the main, the symptoms were identical.

Description.—With each new administration of opium or morphin there is at first a muscular weakness, languor, an imperative necessity for rest; the pulse is diminished in frequency, and the respiration becomes somewhat difficult. Soon, however, the condition changes. A cerebral excitation takes place, the intellectual functions become exalted. In the intervals between individual doses, such patients exhibit the following important symptoms: Intelligence is lowered. Memory is decidedly impaired. The mental energy is weakened. The aptitude for work is lessened. There is a sort of apathy in the patient's thoughts and acts. The moral sense suffers profoundly. The patient loses the sense of obligation to his family, he loses affection for his children, becomes egotistic. His will power is decidedly deficient. One of the patients, a married woman,

frequented a disreputable house, not for sexual reasons, but for the purpose of procuring money for morphin. Another woman became a kleptomaniac for the same reason. Not infrequently these individuals commit excesses of all sorts and even crimes. Deception and lies are common. These general symptoms were present in ten cases. In the remaining sixty there were special mental manifestations characteristic of certain psychoses.

Melancholia: The morbid phenomena of melancholia were observed in eight cases. Here the depression with a tendency to suicide was very marked. However, there were also incoherence, some confusion and a mild degree of dementia. The latter symptoms are not characteristic of typical melancholia. It is true that they are found in the period of terminal dementia, but then the suicidal tendency is usually absent.

Mania: Maniacal agitation with apparent lucidity, alternating with periods of depression, was observed in nine cases. Again the condition simulated the manic depressive form of insanity, but the evolution of the symptoms was not characteristic of it.

Delusions: Systematized delusions of a persecutory nature were noticed in only five cases.

Unclassifiable Symptoms: The remaining thirty-eight cases presented symptoms of an unclassifiable nature. Some of them would reveal delusions of an unsystematized nature, fragmentary, fleeting, changing from day to day, from one examination to another. They were mostly of a persecutory type; some of them presented the expansive form. Delusions of erotic nature figured in many cases. Hypochondriacal delusive ideas were absent. Hallucinations were auditory or visual, more of the latter than of the former. Incoherence and confusion were present in all the cases.

Dementia: This was the prominent feature, especially in cases that were free from delusions and hallucinations. There was a childishness in actions and words and demeanor. The general attitude and appearance were those of dementia due to other causes. To illustrate, the patient smiles and laughs without cause or on the least provocation. When spoken to, he looks up astonished; if an answer follows, it has either no relation to the questions asked or it will be considerably delayed. In some cases the patients are extremely talkative and one question is sufficient to start a conversation which does not cease unless you interrupt it. Two patients of my series in very advanced periods of their morphinism (10 and 14 years of continuous use) could talk at least for a half an hour without pausing. The sentences they used had no connection with one another. The dementia in the majority of my cases was mild, especially in those with the unsystematized delusions and hallucinations, but was marked in cases in which the latter were absent.

Physical Signs: The psychic disorder is usually accompanied by physical signs of chronic poisoning, viz.: muscular asthenia, tremor, anesthesia or hyperesthesia, obstinate constipation, impotence, disturbance of micturition, diminution of salivary, sebaceous, gastric, menstrual and spermatic secretions but increase of perspiration, loss of reflexes and, finally, an especial facies. The last appears to be old and wrinkled.

SECOND GROUP.—B. CHRONIC INTOXICATION WITH COCAIN (TEN CASES).

In six of these cases the habit was acquired while under treatment for nasal affections. They used the drug for from three to eight years. Four patients used cocain for a period of from six to ten years. They acquired the pernicious habit by being advised to use at first the snuff and later internally to get relief from migraine and gastralgia.

Psychic Disturbances.—Besides the physical signs, such as tachycardia, pallor of the face and impotence, the patients presented interesting psychic disturbances. Insomnia was a constant symptom in my cases. In such patients there is restlessness and craving for muscular and intellectual activity. The hallucinations seen in acute poisoning are still more marked in the chronic form. They affect the general sensibility, also sight, hearing and touch. The patient feels that the skin is filled with insects, microbes, crystals of cocain. Sometimes he feels electric shocks, cramps or shooting pains. He sees animals, human beings, shadows, colors, change in the size of objects. He hears voices, sounds, noises. When the muscular sense is altered, the patient feels that he is lifted up in space, carried and abandoned. The hallucinations lead to the formation of delusive ideas which are mostly of a persecutory nature. Systematization of these ideas is very rare (one case); they are mostly unsystematized and vague. Alongside of hallucinations and delusions, there is a gradual and progressive decrease of intellectual force and moral sense. The patient becomes indifferent. His instinct predominates. He is filthy. Dementia is the final outcome.

SECOND GROUP.—C. CHRONIC MIXED INTOXICATION (ELEVEN CASES).

All my eleven cases acquired the habit at first in attempts of substituting cocain for morphin and later by using both drugs simultaneously. Morphin was used hypodermically and cocain by the mouth.

The special hallucinatory images mentioned above in connection with cocainism are all present here, in addition to insomnia and delusive ideas, but what characterizes the mixed intoxications is the more rapid development of the intellectual and moral reduction. The dementia appears early when compared with the date of its appearance in isolated intoxications. In one of the eleven cases the patient, a young physician, presented during a period of four years a systematized persecutory delusion concerning his mother and two brothers who conspired against him. Later he included another physician and myself in his delusive idea. The latter was intensified by terrifying hallucinations. He attempted to kill his mother on two occasions. The previous history of the patient did not warrant the diagnosis of paranoia. However, the paranoid delusion rendered him dangerous. He had to be confined in an asylum. There he was entirely deprived of cocain and morphin and he gradually recovered. Six months later he resumed his old habit and again the same persecutory delusion made its appearance. Again he was committed. A sojourn of four months in an asylum removed all the symptoms. At present he is showing evidences of mild dementia, although there is no return to the drugs.

MORBID MANIFESTATIONS OF ABSTENTION.

Several (26) of the morphin and a few (5) of the cocain habitués were kept under observation, while the drugs were entirely and suddenly withdrawn. The following symptoms could be noticed: Both categories of

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patients presented a picture of extreme suffering; they were restless, full of anxiety, agitated and incapable of listening to others, following a conversation, of reasoning or of reflecting. Delirium and hallucinations were present in some cases, especially in those of mixed intoxication. Some patients would be taken suddenly with chills, accompanied by twitchings. Others showed a tendency to faint. Insomnia was common and persistent. A few of the morphin habitués had morbid impulses. They would suddenly jump out of bed and attack their nurses and relatives or throw objects at them. The cocain habitués continued having the tactile hallucinations, but to a lesser degree than when the drug was used.

The delusional ideas diminished in intensity, but those who presented signs of dementia did not show any improvement in the mental condition. Besides, the physical condition in the majority of the patients became so alarming that occasionally a return to the drugs was absolutely necessary.

In cases of gradual withdrawal there are symptoms of general malaise, of anxiety, of depression. Photophobia and hyperacusis are present; loss of appetite, diarrhea and neuralgia are frequent.

CONCLUSIONS FROM THESE OBSERVATIONS.

A careful analysis of the cases shows that if an attempt is made to find in acute or chronic morphinism and cocainism any of the well-known forms of psychosis, a total failure follows. Some cases may simulate melancholia, mania, manic-depressive insanity and even paranoia, but in none of them can be found the typical pictures of these psychoses.

Outside of the special tactile hallucinations of cocainism, we find in the acute form sometimes a delirious or a stuporous state. An element of confusion always accompanies them. Hallucinations of sight and hearing are frequently present.

In the chronic form, the most important part of the present study, the part which gives us the most concern, we do not find any of the above-mentioned psychoses in their typical forms, but we do find vague manifestations, as delusions of a transient, fleeting and fragmentary character. It is true that at certain periods of their evolution the latter assume the form of systematized ideas and conceptions, reinforced by hallucinatory images, and thus may present a picture of paranoia or other forms of insanity, but the *ensemble* of the condition does not permit us to consider them as such.

A characteristic symptom is the gradually oncoming dementia, which develops very insidiously in the inveterate habitués and increases with years until a complete psychic decrepitude is established. It is this threatening progressive quantitative diminution of mental power that presents the alarming problem for us when we are called on to counsel and render assistance to the community.

When we compare intoxications from other sources with that of our present study we do not find any essential difference. Each agent may add a new special symptom, as, for example, the tactile hallucinations of cocainism, but the fundamental clinical picture in all remains invariably identical. In the acute forms there is a confusion of all sorts of mobile and contradictory conceptions, a dissociation of all elements of normal psychic life. Hebetude, stupor and amnesia follow. These manifestations may be accompanied by hallucinatory images and sometimes superimposed by incidental delirious states. Not infrequently is observed the *"rêve onirique"* on which Régis lays so much stress. That is to say, a dreamy state which is the continuation of dreams occurring during the night. The images seen by the patient in his dreams are confused with the impressions of real life and thus increase the contradiction of conceptions.

In the chronic form all varieties of intoxications invariably lead to the gradual enfeeblement of mentality, viz., dementia.

SUGGESTIONS FOR LEGISLATIVE AND OTHER MEASURES.

The disastrous effect of chronic absorption of morphin and cocain is well known not only to physicians, but also to the laity. The physical and intellectual disintegration to which the pernicious habit leads is a menace to society. The unfortunate characteristic feature of the condition is that when morphin or cocain have been taken for a certain time, they become an imperative necessity to the organism, inasmuch as when being withdrawn the function of each organ is disturbed. The patient seeks then instinctively to supply the want by repeating the initial dose, at first only in small amounts, but later in larger doses. When the habit is established, it is by far more difficult to overcome than that of alcohol. De Quincey, in his "Confessions," states that he used opium for fifty-two years. Four times he attempted to give it up, but only for a short while. Finally he broke himself off forever. "I triumphed," he says, "but infer not, reader, from this word triumphed a condition of joy; think of me as one, even when four months had passed, still agitated, writhing, throbbing, palpitating, shattered."

We can not ignore the fact that while morphinomania or cocainomania used to be known mainly among physicians (according to Lacassagne's statistics over 50 per cent.) and persons coming in contact with drugs by virtue of their occupations, are now spreading to all classes of society. Daily reports of newspapers and statistics prove conclusively the truth of this observation.

In attempting to remedy the growing menace, it should be borne in mind that morphin is a precious remedy in certain incurable affections (cancer, for example), accompanied by atrocious and intolerable pain. In such cases the patient must be supplied with the drug *ad libitum*.

The struggle, therefore, will be confined to those cases in which the passion for morphin or cocain is acquired outside of painful conditions. In such cases, as is well known, the craving and longing for the drugs develop only after a more or less prolonged period of use. Interference at the proper time, therefore, may be of great utility in the majority of cases.

As prophylaxis is the most efficient measure, some legislative acts rigidly enforced will prevent at least the extraordinary propagation of one of the most pernicious habits—which eventually leads to physical and especially mental decrepitude as depicted in the histories of my cases.

In my judgment, no pharmacist or chemical house should dispense the drugs to any person without a physician's prescription. The latter must be written plainly and the order given only once. When a renewal of the drug is necessary, another prescription must be given by the physician. Of course, no attempt should be made by legislature to limit the prescribing physician

to a certain dose of the drug or to a certain number of renewals, as it may interfere with the administration of the drugs in cases in which human suffering is intense. This matter should be left entirely to the physician's moral responsibility.

Heavy penalty with imprisonment should be imposed on those who will sell or give away the drugs without regular prescriptions. Heavy penalty with imprisonment should be imposed on those who will forge a physician's prescription.

Besides a legislative prophylaxis there is a medical prophylaxis. Morphinism usually occurs in individuals with a special make-up of their nervous system. Such persons present deficiency of the intellectual and moral faculties. In them the deficient inhibitory power becomes an easy prey for all abnormal tendencies, particularly for morphinism or cocainism. The latter are the result of a neuropathic constitution, the fruit of hereditary tendencies.

In handling such individuals, one should remember Ball's dictum, to wit: "Morphinomania is entered by the door of pain, of sexual passion, of sorrow, also by the door of contagion, viz., imitation."

THE QUESTION OF RESPONSIBILITY.

We have seen above what order of mental disturbances are present in acute and chronic intoxication.

In the *acute* form, mental excitement, delirium and hallucinations with incoherence are the usual psychic manifestations. They resemble, therefore, the symptoms of acute alcoholic intoxication. When a criminal act is committed by an individual who is in a delirious state and has hallucinations, who is then incapable of distinguishing between right and wrong, whose cerebral functions are then in a state of dissociation, such an individual can not be considered responsible for his acts from a medical standpoint.

When the patient is only in a state of mild agitation, without a delirious or hallucinatory state, or in a mildly stuporous condition, the responsibility is complete. Partial responsibility should be admitted when the patient has recovered from the immediate effects of acute intoxication, but remains for weeks, as we have seen in some of my cases, mentally dull, apathetic, with lack of sustained attention and difficulty of comprehension.

In the *chronic* form of morphinism and cocainism the impairment or disappearance of the moral sense, deficiency of the will power and even a mild diminution of intellectual faculties do not entirely exempt a morphin habitué from responsibility; the latter is only partial. When delusive ideas or hallucinations are present, the irresponsibility is total.

When the patient reaches the stage of dementia, even in the absence of delusions, he can not be held responsible for any of his acts.

Sweat Secretion in High Altitudes.—H. Sewall, in *Colorado Medicine*, states that the technical difficulties in the way of determining the relation of altitude to secretion of perspiration are very great. It is commonly stated by those who guess at facts that the circulation in the skin and the activity of the sweat glands increase with the elevation above sea level. Mosso found, on the contrary, that a resting man loses weight more slowly from the skin on the mountains than at sea level. Zuntz found that exercise at a moderately high elevation—1,740 feet—produced more abundant sweating than in Berlin.

REMARKS ON THE FEEDING OF THE HEALTHY INFANT.

JOSEPH BRENNEMANN, M.D.
Assistant Professor of Clinical Pediatrics, Northwestern University Medical School.
CHICAGO.

During the last decade the problem of infant feeding has been a peculiarly interesting one in this country. While European writers are fairly well agreed on fundamental methods, there has grown up a system of infant feeding in this country that in its elaboration is unique. This so-called percentage, or American, system has received such universal and unqualified approval among our pediatricians that it seems almost like heresy to doubt its tenets, and yet an overwhelming mass of evidence has appeared in the last few years that to my mind discredits the fundamental principles of that system.

I shall first outline what I believe to be a rational dietary for the first year of life and will then advance briefly some objections to the percentage method. It is important at the start to define the term "healthy" baby, because there is an essential difference between a healthy and a sick baby in its reaction to food. This difference centers in one fact—a normal, healthy infant has a broad tolerance for widely different food mixtures and for varying amounts and strengths of the different food elements, fats, proteids and carbohydrates. On the other hand, a baby that is congenitally below par, or that has been damaged by unwise feeding, or that has a temporary nutritional or digestive disturbance due to some intercurrent infection such as pneumonia, has a narrow range of tolerance for food. The sick baby requires careful dosage of food both as to quantity and composition. The moment a healthy baby is upset it is no longer a healthy baby but a sick one and must be treated as such. A food of a certain quantity and composition that yesterday was adapted to a healthy infant to-day may act as so much poison to the same baby that in the meantime has had an acute digestive or nutritional or constitutional disturbance.

THE QUESTION OF ARTIFICIAL FEEDING.

The most serious question that confronts the physician in the feeding of healthy infants is what to feed a new-born baby that is unable to get mother's milk. Budin, who was second to none in the value of his experience in infant feeding, says: "We, ourselves, and we say it in all sincerity, can not as yet indicate from our personal experience what is the best method of procedure in artificial feeding from the start." In practice he answered the question by making sure that nearly every baby in his care had mother's milk for a time. The value of the latter, even if used only for a short time, can hardly be overestimated.

Practically, it will be found that the great majority of new-born babies will bear well after the second day of life—and no baby should be fed artificially before that time—a dilution of one part of milk with two parts of water, with the addition of a small amount of milk sugar, say one-quarter to one-half an ounce in the twenty-four hours' food. This dilution can be strengthened gradually till the baby takes equal parts of milk and water with one-half to one ounce of milk sugar daily during the second and third months. The proportion of milk is gradually increased, that of water and sugar diminished till toward the end of the first year the child is on whole milk. The total twenty-four hours' food should

rarely exceed one quart. After the fifth or sixth month the ability to digest starch is so well established that the diluent of water is replaced by one of the cereal waters, or gruels. In the latter months of the first year additional food is given in the form of broths, strained vegetable soups, beef juice, fruit juice, zwieback, cracker, cereals, etc.

FREQUENCY OF FEEDING.

At no time during infancy is it desirable to feed the baby more often than five or six times in the twenty-four hours, and toward the end of the first year the number should not exceed four. This gives approximately a four-hour interval between feedings, and I believe that this interval, in the great majority of cases, should obtain from the start. It is a well-established fact that the stomach of a baby fed on cow's milk is not emptied till at least three hours after feeding. To feed a child oftener than, say, every three hours necessarily favors retention and the formation of fatty acids and is the cause of much of the indigestion that goes with early artificial feeding. Observation on any normal infant for the first few months of life that is digesting its food well will demonstrate the fact that naturally it will go as long as from three to five hours between feedings. It is a common experience that a baby fed at the breast every two hours will nurse well only every second time, while it can hardly be roused from its sleep the other time. The custom of feeding a bottle baby every two hours, that is still the rule for the first few months, has certainly no foundation in theory, and it can be demonstrated practically in nearly every baby that it is unwise to refill a stomach at the end of two hours when it is only partly empty. It is my experience that babies fed every four hours cry less than those that are fed every two or three hours, for the simple reason that babies cry far more from digestive and nutritional disturbances than from hunger.

THE QUANTITY OF FOOD.

The question of how to feed a baby is only partly solved when we have decided what it shall get and how often; there still remains the great factor of how much the child shall get. Our text-books, unfortunately, give us but little help in this, because they lay every stress on the strength or percentage and not on the total amount of food. A number of continental writers, notably Biedert, Heubner and Budin, have emphasized the great danger of overfeeding and each has attempted to show how to avoid it. It remained, however, for Czerny and Keller to show us just what happens when a healthy baby gets too much milk, and why it happens. This clinical picture of milk overfeeding is not an occasional occurrence—it is the rule. Nearly every baby that is fed milk without some check on the amount given during the twenty-four hours shows it in greater or less degree.

RESULTS OF OVERFEEDING.

When a healthy infant gets more milk than it ought to have it commonly gains for a time at an abnormal rate, say, from eight to twelve ounces a week. This gain in weight is quite regularly followed by a stationary weight unless the amount of food is reduced or changed in a certain way. If the amount of the same food is still further increased there may be another gain, but the child will finally begin to lose. If unchecked the ultimate outcome of this overfeeding is marasmus. This paradoxical loss in weight with an increase in food is accompanied by other signs of a fundamental nutritional disturbance. The child becomes restless, its sleep is broken and it cries a great deal. It becomes pale, flabby and inactive, often rachitic. It has a marked tendency to itching eruptions that vary from the small, rough reddish spots on each cheek to the most extensive universal infantile eczema. It very commonly becomes peculiarly indifferent to its bottle, requiring much coaxing to take it, or in severe cases finally taking only an ounce or two at a time.

This condition of milk overfeeding is always accompanied by a characteristic appearance of the bowel movements which in itself shows that the child has had too much milk. The stools lose their normal yellow color, become pale yellow, or in severe cases have the color and consistency of putty. They are no longer normally moist and soft, but become hard and brittle, so that they will roll from the diaper without leaving it soiled. This condition naturally produces very marked constipation.

TOO MUCH FAT.

Whenever such bowel movements appear it means that the child has had too much milk, or, more properly, too much milk fat, because it has been shown that these bowel movements are composed largely of insoluble fatty acid salts. The resulting acidosis Czerny and Keller consider the cause of the nutritional disturbance that has just been outlined. That the fat alone is the cause of this condition is further shown by the fact that increasing the milk, or the fat alone by adding cream, will heighten the whole clinical picture, while diminishing the fat or eliminating it will produce a return to normal. The proteids and sugar have no part in this clinical picture. This is clearly shown by the fact that these cases improve most rapidly on malt soup, or skim milk, or buttermilk mixtures in which the fat is the lowest, while the proteid and sugar are the highest ever used in infant feeding.

At any time in this chronic process of milk overfeeding the whole clinical picture may suddenly change to one of an acute catastrophe. In many infants these sudden upheavals occur regularly whenever milk is added up to a certain amount. This upsetting, that is so frequent an occurrence in artificial feeding, is manifested clinically by vomiting, indigestion, diarrhea, loss in weight, fever, inability to stand food, especially milk, stupor or restlessness. If the disturbance is severe there are all the evidences of intoxication, including leucocytosis, albuminuria, glycosuria, dyspnea, collapse and especially psychic depression. This condition may vary from a mild indigestion to an intoxication so intense that it is rapidly fatal. The more serious cases occur more commonly during hot weather because the child is already debilitated by the heat, but more especially because it is relatively more overfed because it needs so much less food to maintain its heat and energy.

A METABOLIC DISTURBANCE.

This acute calamity has commonly received the name of gastrointestinal disturbance, summer complaint, summer diarrhea, enterocatarrh, gastroenteritis, gastroenteric intoxication, cholera infantum, etc., and has always been assumed to be due to an intercurrent infection along the gastrointestinal tract. In a series of classical papers appearing in the *Jahrbuch für Kinderheilkunde* during the past six months Finkelstein of Berlin has demonstrated very convincingly that the intoxications that occur in these cases are not due to an infection but to a metabolic intoxication more akin to

uremia or diabetic coma, caused by the ingestion of more food than the baby can assimilate. That this theory is a correct one is evidenced by the fact that any degree of indigestion and intoxication can be produced at will in these cases by increasing the food to a sufficient degree, and a return to normal will follow just as certainly when all food is withdrawn for twenty-four or forty-eight hours. Finkelstein has increased the food in several cases without a qualm of conscience, because he knew that a day or two of water diet would restore the child to its former condition.

It seems to me that in this idea of a metabolic disturbance rather than in a simple infective process we have the only satisfactory explanation for the greater prevalence during the summer months of these digestive and nutritional disturbances that are accompanied by intoxication and have in this a most valuable indication that any infant food must be materially lessened during the hot weather.

This metabolic intoxication follows most naturally and most frequently in the cases of milk overfeeding. Theoretically, then, one would expect the fat to play the chief rôle here as there. These patients, we know from every-day experience, can not take cream nor even whole milk in small quantities for some time, and yet will take skimmed milk almost from the start. A child that is well convalescent can be given a relapse to its former condition by the addition of only a small amount of fat. Finkelstein has shown conclusively that sugar when given in excess, as in buttermilk and malt soup preparations, can produce the same intoxications and, even in small amount, the same relapse, while proteid, whether albumin or casein, can produce neither.

I have dwelt rather at length on these results of overfeeding, because the artificial feeding of healthy infants is a negative as well as a positive procedure. We must see not only that the baby gets enough of each of the food elements, but also that no harm comes to it from unwise feeding. If overfeeding is as important a factor in the causation of digestive and nutritional disturbances as I have indicated, then the prophylaxis of overfeeding is of the greatest importance in the feeding of a healthy baby.

In those babies that one has under satisfactory observation it is a simple enough matter to tell when they are thriving as they should, and almost equally simple to tell when disturbances are arising that are due to overfeeding. A healthy child is a "good baby" unless it is spoiled; it sleeps well, it is contented and active, has a good pink color, its tissues are firm, its bowel movements are yellow, moist, not excessively offensive and well digested; its temperature is remarkably uniform at all times; its gain in weight conforms to what we recognize as a norm, a steady gain of about four ounces a week throughout the year, a little more during the first few months, a little less during the last few months. If too little food is given the gain is insufficient, if it is increased to the proper amount the gain becomes normal. Milk overfeeding is easily recognized by the symptom-complex outlined above.

THE EVIDENCES OF INTOXICATION.

The acute catastrophes or intoxications likewise give their warnings. The prodromata that are always present may be of very short duration, or they may extend over weeks and months and should always be heeded. There is evidence of indigestion shown by the general condition of discomfort and by the character of the bowel movements; the weight curve shows wide variations with a general tendency to remain about level or to go down. Still more important, there is an abnormally variable temperature curve with occasional spurts of fever and an increasingly narrow tolerance for certain food elements, notably the fat and the sugar. If these warnings are heeded and all food is withheld for twenty-four or forty-eight hours while the child is on a water or tea or cereal water diet with saccharin (gr. i to the quart) to sweeten its food the danger is avoided. If unheeded, and especially if the food is increased because the child is losing, the intoxication is almost inevitable.

Fortunately we have certain numerical standards as to the amount of food that the normal infant should get. These figures are the result of observations on large numbers of thriving breast-fed and bottle-fed babies. These standards are of immense practical value in every case, but especially in those cases in which one can not see the patient constantly, not so much to tell us how much to give a baby as how much not to give. They should be considered, therefore, rather as a check on overfeeding and underfeeding than as a guide.

BODYWEIGHT VERSUS AGE.

If simple milk dilutions with the addition of carbohydrates are used the simplest and most natural standard would be one that would tell us about how much milk per pound or kilogram a baby should get. That it is more important, as a general proposition, to vary the amount of milk according to weight rather than according to age is, I think, a self-evident fact. Budin gave us a valuable rule of this kind. He prescribed for every baby after the fifth or sixth month and weighing from thirteen to fifteen pounds one-tenth of its body weight of undiluted milk. This would be the equivalent of about one and one-half ounces to the pound. This standard, if a proper one when straight whole milk is used, is manifestly too high when milk dilutions with the addition of sugar or gruels are given, because here a considerable quantity of food is given outside of the milk itself in the form of sugar or starch.

In such dilutions as I have indicated it has been found that one ounce of milk to the pound of bodyweight is about a minimum on which a healthy baby will thrive as it should; that an ounce and a quarter is the more usual amount, and that we commonly have distinct evidence of overfeeding when we approach one and one-half ounces to the pound. A healthy baby of twelve pounds, therefore, would have at least twelve ounces of whole milk in its twenty-four hour food, more commonly fifteen ounces, and rarely if ever as much as eighteen ounces. It must be distinctly understood that this is not a definite rule applicable to every healthy baby. The important point is that it has been found empirically that the milk requirement of the great majority of healthy babies who are thriving on milk dilutions such as the above lies between one and one and a half ounces to the pound of body-weight. To my mind this simple guide is one of the most useful in infant feeding. It is, of course, of no value in feeding a sick baby, because here the limit of food tolerance is very quickly reached and we can give only as much as the baby can digest and assimilate in its present condition.

THE ENERGY QUOTIENT.

A still more useful standard, because it can be applied to all kinds of food combinations, is the calorimetric

standard, according to which the food requirements are expressed in calories per pound, or per kilogram of body-weight of baby. To Heubner belongs the credit of having accurately determined the number of calories per kilogram of body-weight used daily by the healthy, thriving infant. This so-called "energy quotient" he placed at a maximum of one hundred for the first six months, the amount gradually lessening after that to about eighty or eighty-five at the end of the first year. He considered seventy as the approximate energy quotient on which weight equilibrium would be maintained. For several years I have determined the energy quotient in every feeding I have given and I am still daily impressed with the practical value and accuracy of the figures laid down by Heubner.

Only very exceptionally, if ever, is it necessary in healthy babies to exceed these figures. It must be emphasized that one should never determine in advance how many calories to feed a baby of a certain age and weight, but that we feed a baby a food of proper composition, and at proper intervals for that baby, and keep tab on its energy quotient to prevent overfeeding and underfeeding and to give one that sense of security that comes from knowing that the baby is getting about the amount of food it ought to have. Often a very satisfactory gain is made on energy quotients much lower than those determined by Heubner; the amount on which that child is thriving should not be increased no matter how low the energy quotient.

It is not at all uncommon, on the other hand, to find a baby fed on whey, or skimmed milk, or barley water, or condensed milk mixtures, for a long time, with an energy quotient of only thirty or forty, while the baby needs at least seventy to hold its weight. It is impossible to tell in such cases how much food a child is really getting as compared with what it ought to get unless one uses this calorimetric standard.

The process of determining the energy quotient in any given case is a very simple one. It is necessary to remember only a few figures that represent the caloric value of one ounce of each different food used in infant feeding. Thus cream (16 per cent.) has a caloric value of about fifty-four to the ounce; milk, twenty-one; fat-free milk, ten; sugar, one hundred and twenty; flour or cereal, one hundred; cereal water, two or three, etc. To calculate the energy quotient it is only necessary to miltiply the number of ounces of each ingredient of the food mixture by its caloric value, to add the products and to divide the sum by the number of kilograms the baby weighs. If we divide the total number of calories by the number of pounds it will be necessary to multiply this by 2.2 to get the number of calories per kilogram. After a little practice the energy quotient of a somewhat complex food can be calculated in a few seconds even without the use of paper and pencil.

THE PERCENTAGE METHOD.

Nearly all that has been said has been so at variance with what is taught in our text-books, and what is commonly practiced in this country, that the subject can hardly be dismissed without some reference to the percentage method. The percentage method is practically based on the idea that the proteid of cow's milk is the one food element that is difficult to digest, and, on the other hand, that the fat is comparatively harmless and easy to digest. It further assumes that in feeding a baby the important thing in modifying the food is to give the baby a certain percentage of each food element rather than to give it a certain amount of food. As a logical sequence to this certain tables are set forth that indicate what strength of food a healthy baby should have at different months, the percentages gradually increasing as the infant grows older.

That the proteid of cow's milk is difficult to digest by infants it seems to me has no longer any positive evidence to support it and is discredited by nearly all Continental writers. For a number of years some of us have looked in vain for any clinical picture that we could designate as proteid indigestion. There is a purely theoretical consideration that casein must be hard to digest, because relatively so abundant in cow's milk, because it curdles in large firm masses instead of the finer ones of mother's milk, and because curds that are assumed to be casein are found in the bowel movements as evidence of indigestion. This theoretical consideration has no standing when it can be demonstrated practically that nearly any baby can digest a high percentage of pure casein in suspension, or skimmed milk, provided it can stand that much sugar, and that curds never appear in the stools no matter how great the percentage of proteid, provided the food is fat free, and lastly that curds regularly appear in the stools of babies to whose food whole milk is added even in small quantities after they have been on a fat-free milk. The very curds that have been assumed to be casein, we are now told on the highest authority, are chiefly fat derivatives.

On account of the complexity of proteid metabolism it would seem, theoretically, that an excessive amount of proteid would make a greater demand on both the digestive and metabolic powers of the child than the other food elements. To what extent this is true can not be told at the present time. There is very little if any evidence at the present time that there is any harm in feeding a large amount of proteid, although the fact that Nature provides for so little in mother's milk would make us hesitate to use an excessive amount. It is certainly an interesting fact in this connection that in the cases of severe intoxication, where digestion is nil, and where there is a state of "metabolic bankruptcy" (Finkelstein), proteid alone can be fed, in what would usually be considered excessive amounts even in health, without any detrimental effect, while the administration of small amounts of fat or sugar would surely produce serious results. In two cases of summer diarrhea with profound intoxication, and the patients seemingly moribund, each was given, after one day of water diet during the next twenty-four hours, the pure washed casein in suspension of sixteen ounces of milk. This was followed by an uninterrupted convalescence and curdless bowel movements. Formerly I would not have dared give them even one ounce of milk for a number of days on account of the fear of "proteid indigestion," and I feel positive that both babies would have died if they had been put on barley water with sugar, or on whey, or on milk containing fat.

That fat is relatively easy to digest and metabolize seems equally doubtful. It is certainly the one cause of milk overfeeding and plays the leading rôle in the intoxications, and these two conditions are much the most frequent and serious nutritional disturbances in infancy. We all know from every-day experience that cream is not well borne by sick babies, especially those that have a digestive disturbance, nor is whole milk so well taken as skimmed milk, and if this is true, then there is every reason to believe that the fat is compara-

tively difficult to digest in health as well. All through our literature we see more and more evidence of the fact that fat is no longer considered so easily digested and assimilated as was formerly thought. The following case is instructive in this connection:

AN ILLUSTRATIVE CASE.

History.—Baby B., aged nine months; weight, eighteen pounds; healthy and thriving on equal parts of milk and barley, water and sugar. The proteid was increased to 4 per cent. within four days; the fat remaining the same (2 per cent.) and the caloric value approximately the same (energy quotient=90). No deviation from the normal gain, digestion and well-being during the following week. During the following ten days the fat was increased to 4 per cent., the proteid lowered to 2 per cent. and the same caloric value maintained. Within a few days practically every symptom of overfeeding was produced, including a universal eczema—which the mother interpreted as measles—anorrhexia, restlessness, pallor, loss of twelve ounces in two weeks, hard gray bowel movements, and finally the fever, frequently cheesy bowel movements, etc., of a beginning intoxication. The fat was then at once lowered to 2 per cent., the proteid increased to 4 per cent., the caloric value remaining the same. Within a few days the child was normal again in every way. Such an experiment is justifiable only because we have a positive assurance that a rational therapy based on our knowledge of the pathogenesis of overfeeding will quickly restore the child to its former condition unharmed.

The assumption that the percentage of different food elements is of prime significance is equally untenable. If the child can only retain and digest it, it makes little difference what the strength of the food is, but it does make all the difference between failure and success whether the child gets a proper or an excessive amount of food. One can as easily overfeed a baby on a large amount of a low percentage of everything as on a much smaller amount of a stronger food. In other words, the percentage of food elements *per se* has no bearing on overfeeding or underfeeding. With the high percentages of fat commonly advocated by those who use the percentage method we have, furthermore, the use of a maximum amount of the one food element that is the important factor in producing the nutritional disturbances that result from overfeeding, i. e., the fat.

Moreover, a study of the tables given in our leading text-books will show that from a calorimetric standpoint they uniformly recommend or permit excessive amounts, especially during the latter part of the first year. For a baby of six months weighing, say, fifteen or sixteen pounds, Holt's table permits an energy quotient varying from 95 to 150, while a proper amount would be 80 to 90 or 95.

It is interesting in this connection, too, to bear in mind the simple fact that mother's milk varies but little in composition or percentage after the first few weeks, but that its amount varies directly in proportion to the needs of the nursling.

It is claimed for the percentage method that it is unique in its flexibility, permitting us to increase or diminish individual food elements at will. With the proteid as a practically negligible quantity in therapeutic amounts it is evident that the other food elements, the fat and the carbohydrates, can be varied just as freely in the use of simple milk dilutions.

Finally, it must be admitted that the percentage system has always seemed a peculiarly complicated one to the great majority of physicians and that most of them ultimately did not use it as taught by those most conversant with it. If not used as intended it permits of a wide range of error. Frequently cream is added in excessive amounts without calculation of either the amount or the percentage and the inevitable bad results follow. It is little wonder, then, that a majority of physicians finally use the simple modifications recommended by the "baby food" men, and this alone is a serious arraignment of that system.

In conclusion, I wish to express my indebtedness to Dr. F. X. Walls for his very kind assistance in many ways.

4549 Indiana Avenue.

CLINICAL OBSERVATIONS ON ANTIGONOCOCCIC SERUM.

ALEXANDER A. UHLE, M.D.
Instructor in Genitourinary Diseases, University of Pennsylvania. Assistant Genitourinary Surgeon, Philadelphia General Hospital. Special Assistant, Surgical Dispensary, German Hospital.

AND

WILLIAM H. MACKINNEY, M.D.
Assistant Surgeon, Genitourinary Dispensary, University Hospital.
PHILADELPHIA.

In October, 1907, a quantity of antigonococcic serum was placed in our hands by Parke, Davis & Co. for experimental use in the treatment of gonorrhea and its complications. This serum is prepared according to the directions of Dr. Torrey and consists of serum obtained from the sheep, immunized against several strains or varieties of gonococci. For an account of the experimental work and the technic employed in the manufacture of the serum we refer the reader to articles by Drs. Torrey and Rogers[1] and a further communication by Dr. Rogers and Dr. Torrey.[2]

The serum is supplied in sealed bulbs of 2 c.c. capacity, and this quantity is recommended as a dose, to be injected hypodermically into the loose cellular tissue of the back, buttock or arm. In our experiments we have never used, except in one case, a larger single dose than 2 c.c., the intervals between injections varying from one to three days. The injections were given deeply into the buttock, as a rule, but in a few cases the interscapular region or the loose tissue on the back of the arm was selected. Our experiments were carried out on a series of twenty-three cases, twelve of which were confined to the hospital and therefore under better supervision than the remaining number which, with one exception, were ambulant cases. The following is a brief report of the history and course of each case:

CASE 1.—The patient, C. I., had gonorrhea two years ago, with recurrences at intervals and acute exacerbation two weeks before admission. There was a mucopurulent discharge in which gonococci were found. The first glass was cloudy, second glass clear. The prostate was enlarged, soft and tender, but not nodular. Gonococci were found in the expressed secretion after irrigation of the anterior urethra. The first injection was made Oct. 16, 1907, consisting of 2 c.c. of serum into the buttock. The injection was repeated in four days and all other treatment discontinued except massage of the prostate. The third and last injection was given three days later. There was less discharge, but gonococci were still present in the expressed secretion of the prostate. On Oct. 24, 1907, the patient refused to remain for further treatment. There was less discharge, but otherwise the condition was the same as on admission.

1. THE JOURNAL A. M. A., Jan. 27, 1906, xlvi, 261, 263.
2. THE JOURNAL A. M. A., Sept. 14, 1907, xlix, 918.

CASE 2.—The patient, R. E., had gonorrhea twenty years ago and again five years ago. Since this time he frequently observed a mucoid discharge especially after drinking and intercourse. Examination revealed a slight mucoid discharge and many shreds in the first glass of the two-glass test. Many large shreds were present in the third glass after massage of the prostate. No stricture was present. The right lobe of the prostate was large and tender; the left lobe was not markedly enlarged, but tender. Gonococci were found after several examinations of the expressed secretion. The patient had been treated for three months with but slight improvement before the first injection, which was given on Oct. 16, 1907. All other treatment was then discontinued except massage of the prostate twice weekly. He received nine injections in all, given every other day. There was no improvement in his condition and gonococci were present when this treatment was discontinued.

CASE 3.—The patient, M. P., had a negative past history. The duration of his condition before admission was three months. The patient developed a left epididymitis in the tenth week. Examination revealed a large, painful and tender epididymis, slight mucopurulent discharge, both urines cloudy, and gonococci present. On date of admission, Oct. 28, 1907, the patient was put to bed, the scrotum elevated and an injection of serum given into the buttock. The injections were repeated daily until November 9, with a gradual improvement in the condition. The pain and tenderness had subsided, a discharge was still present and both glasses of the two-glass test were cloudy. The injections were discontinued and other treatment instituted.

CASE 4.—The patient, W. S., had a negative past history. The duration of his condition was seven days before admission, Oct. 31, 1907. There was a profuse purulent discharge; first glass cloudy and second glass clear, gonococci present. Six days after the patient's admission there developed a painful and tender swelling in the calf of the right leg, extending from a few inches above the ankle almost to the popliteal space. The patient could not walk on account of the pain. A probable gonorrheal myositis was diagnosed and serum treatment instituted, the injections being repeated every third day. On the day after the second injection there was less swelling, but considerable pain and tenderness persisted. After five injections had been given the swelling had almost disappeared, but pain and tenderness were still present. Bier's hyperemic treatment was then applied every day, and the injections continued every third day until November 30, when all local evidence of inflammation had disappeared. During the treatment the urethral discharge ceased, and only a few shreds were present in the urine. An astringent injection was given and caused a reaction, and gonococci were demonstrated in the discharge.

CASE 5.—The patient, L. L., had gonorrhea two years ago. The present attack was of five weeks' duration. There was a purulent discharge; gonococci were present. There was frequent, imperative urination and both glasses were cloudy. The left ankle began to swell two weeks after the onset of the acute attack. The joint was swollen, very tender and painful. The first injection was given the day after admission, Nov. 6, 1907. Bier's treatment was used in conjunction with rest and elevation. Patient received six injections in all, every third day. The day following the third injection the joint was but slightly swollen; there was no pain or tenderness, and the acute urethral symptoms had ceased. After the sixth injection there was no evidence of local inflammation. The urethral discharge, however, persisted.

CASE 6.—The patient, J. D., had gonorrhea five years ago. He was admitted Nov. 19, 1907, suffering from acute gonorrhea of four days' duration. There was a marked purulent discharge, and gonococci were present. The first glass was cloudy and second glass clear. Patient received first injection on the day after admission. Three injections were given during a period of one week. There was no improvement in his condition and he was referred to the dispensary, but failed to report.

CASE 7.—The patient, C. C., had gonorrhea five years ago. The present attack was of four days' duration. There was a purulent discharge; the first glass was cloudy and second glass clear; gonococci were present. The patient was given an injection every day for one week, at which time there was no improvement and he refused further hypodermic medication.

CASE 8.—The patient, J. D., had gonorrhea ten years ago and several recurrences since. The duration of the present attack was three weeks. There was a purulent discharge; the first glass was cloudy and the second glass clear; gonococci were present. The patient was referred from the medical wards, where he had received treatment for supposed rheumatism confined to the back and right hip. Patient complained of severe pain in the back and right hip and walked with difficulty, but there was no local evidence of inflammation. Injections were given every other day, six in all. There was less discharge; the urine remained the same and gonococci were present. There was no relief from pain. Serum treatment was discontinued.

CASE 9.—The patient, W. J., had a negative past history. The duration of the present attack was two weeks. There was a moderate purulent discharge; both glasses were cloudy, and there was frequent imperative urination. There was a right epididymitis of six days' duration and a left epididymitis of three days' duration. Gonococci were present in the discharge. On Nov. 13, 1907, the patient received the first injection. There was no other treatment except rest in bed and elevation of the scrotum. On November 16 the patient complained of slight pain and tenderness. The swelling rapidly disappeared on both sides; the discharge remained the same. The patient received a second injection November 19. There was no pain or tenderness; a slight swelling remained; the discharge was the same. A third injection was given on November 22. A small nodule was present on each side. A fourth injection was given on November 26. All symptoms of posterior urethritis having disappeared, serum treatment was discontinued and the patient was referred to the dispensary for further treatment.

CASE 10.—The patient, M. M., had a negative past history. The duration of his present attack was three weeks. The patient was admitted to the hospital Oct. 29, 1907, with a purulent urethral discharge, in which gonococci were present. There was frequent, imperative urination and both glasses were cloudy. Daily irrigations, together with internal balsamic treatment, were given until Nov. 21, 1907, with but slight improvement. On this date the first injection was given and all other treatment was discontinued. Two days later another injection was given and injections were repeated every second day until five injections had been given. In this patient there was a marked improvement from the beginning of the serum treatment. The discharge became less, and, after the third injection, ceased entirely. After the fifth injection the urine was perfectly clear.

CASE 11.—The patient, A. E., had a negative past history, and a gonorrhea of three weeks' duration. He developed a right epididymitis two weeks after the urethral discharge was first noted. At the time of admission to the hospital there was a slight mucopurulent discharge in which gonococci were found; the first urine was cloudy and the second slightly cloudy. The epididymis was very large, painful and tender. On Nov. 25, 1907, the date of admission, the patient was put to bed, the testicles were elevated and an injection of 2 c.c. was given into the buttock. In three days there was no pain, slight tenderness and the epididymis was almost normal size. Another injection was given, and repeated in three days. At this time only a small nodule remained. There was no return of the discharge, and the first glass of the two-glass test contained only shreds. The serum treatment was discontinued.

CASE 12.—The patient, J. S., had no previous history of venereal disease. The patient first noted a discharge Nov. 4, 1907, and developed a right epididymitis Nov. 13, 1907. He was admitted to the hospital on November 20 with a purulent discharge, frequent urination and a large, painful swelling of the right epididymis. Both glasses were cloudy. He was given an injection on day of admission, and the treatment was repeated daily for four days, without making the slightest improvement in his condition. It was necessary to give him anodynes every night on account of the pain. The serum treatment was discontinued, and wet dressing of a saturated

solution of magnesium sulphate applied. All pain disappeared in four hours.

CASE 13.—The patient, J. G., had gonorrhea six years ago and came to the dispensary of the German Hospital with gonorrhea of three weeks' duration. He complained of frequent imperative urination and both glasses were cloudy. He was given five injections, each of 2 c.c. serum on every second day. No other treatment was given. As there was no improvement in his condition, and as he objected to further hypodermic medication, other treatment was instituted.

CASE 14.—The patient, C. R., had gonorrhea of seven weeks' duration, and left epididymitis of five weeks' duration. He had a slight discharge containing gonococci. The epididymis was not painful, but large, hard and indurated. The first glass was cloudy, the second clear. He received four injections at intervals of three days. No improvement was noted. He objected to further hypodermic medication.

CASE 15.—The patient, E. K., had a gonorrhea of three months' duration and a left epididymitis of one month's duration. When first seen in the dispensary there was a slight purulent discharge; the epididymis was slightly tender, large and indurated. Both urines were cloudy. The patient complained of marked pain in the left ankle, which was not swollen, but tender to pressure. The left wrist joint was very painful, tender and slightly swollen. The pain in the joints was noted three days before coming to the dispensary. The patient received the first injection Dec. 16, 1907. On December 20 his condition was the same and he received his second injection. On December 23 his urethral condition was the same; there was no pain in ankle, but a slight tenderness; the epididymis was somewhat smaller. Another injection was given. On December 27 there was no pain or tenderness in ankle; a slight tenderness only on pressure in wrist joint. Otherwise the patient's condition was the same. On December 30 there was no evidence of articular involvement. On January 3 there was a slight mucopurulent discharge containing gonococci; the first glass was cloudy and the second clear. The epididymis was still large and indurated.

CASE 16.—The patient, J. T., had a negative past history. He came to the dispensary November 18 with a profuse purulent discharge of four days' duration; the first glass was cloudy, the second clear. An injection of 2 c.c. serum was given. On November 20 no improvement was seen and a second injection was given. On November 23 there was a profuse purulent discharge, with edema of prepuce and chordee. The patient requested other treatment, refusing further hypodermic medication.

CASE 17.—The patient, J. L., had gonorrhea eight years ago. The duration of his present condition was two weeks. There was a profuse purulent discharge, chordee, and left epididymitis of one days' duration. A suspensory bandage was applied and an injection of serum given. On November 24 the patient's condition was the same, and a second injection was given. The patient was not observed again for six weeks. He then returned to the dispensary for treatment of urethritis. In the interim he had sought treatment elsewhere and the left testicle had been removed.

CASE 18.—The patient, F. S., had a negative past history. The duration of his present condition was eight months. The meatus was small; there was a purulent discharge, no urinary frequency; both glasses were cloudy. On November 18 an injection of 4 c.c. serum was given. The patient did not return to the dispensary until December 2. There was no discharge, and both glasses were clear. The patient denied taking any other treatment. On December 16 there was no discharge; the first glass contained a few shreds. No gonococci were found. The patient did not return for further observation.

CASE 19.—The patient had a gonorrhea of three weeks' duration. There was a profuse purulent discharge and marked local symptoms; gonococci were present. There was no urinary frequency; the first glass was cloudy, the second clear. On December 16 an injection of 2 c.c. was given and the treatment repeated every day until five injections had been given. On December 22 there was no improvement; the disease had extended to the posterior urethra. The serum treatment was discontinued.

CASE 20.—The patient, G. E., had gonorrhea eight years ago and again four years ago. The duration of his present condition was one month. There was a purulent discharge containing gonococci and frequent imperative urination. The prostate was large, tender and soft. Both ankles and the right knee were acutely inflamed. On December 14 an injection of 2 c.c. of serum was given, and the treatment repeated daily for six days. There was then an entire absence of articular involvement. The urethral and prostatic condition remained the same.

CASE 21.—The patient, W. W., had had gonorrhea for seven months. There was a mucoid discharge and the urine was full of shreds. Gonococci were present in the prostatic secretion obtained by massage. On November 21 the patient received the first injection, and all other treatment was discontinued except massage of the prostate per rectum. Nine injections in all were given in the following fifteen days. There was no improvement and the serum treatment was discontinued.

CASES 22 and 23.—These were dispensary patients suffering with subsiding urethritis, presenting a mucopurulent discharge and shreds in the first urine voided. Each received two injections at intervals of three days, but neither reported for further observation.

Of the twenty-three patients treated, patients 1 to 12 inclusive were confined in the hospital; all the others, with the exception of patient 20, were ambulant cases. All of the patients suffering with acute inflammatory complications who were treated in the hospital, and patient 20 as well, were confined to bed. Regarding the action of the serum on the urethral infection, it appears that it has little if any curative action. The improvement in the urethral condition in some patients may be attributed more to rest and hygienic treatment than to any specific action of the serum.

None of the patients suffering with gonorrheal prostatitis was cured. Of the seven cases of epididymitis, improvement was observed in three, no improvement in four. These three patients were confined to bed, with elevation of the scrotum, and it is doubtful if the improvement can be attributed to the serum alone. As is well known, many patients suffering with epididymitis are relieved of acute symptoms when confined to bed and receiving no treatment other than elevation of the scrotum.

If conclusions can be drawn from this limited number of cases, it appears that neither the number of injections nor the time elapsing between injections has any influence on the results of the treatment, as in no case was there what might be termed a prompt improvement, which is to be expected from an antitoxin treatment. Possibly better results would have followed the administration of larger doses.

The best results were obtained in the patients suffering with arthritis. Three were promptly relieved and all local evidences of inflammation had subsided in less than two weeks. In one of these Bier's treatment was used in conjunction. As is well known, gonorrheal arthritis is one of the most obstinate conditions to cure, and such prompt relief as was obtained is encouraging. With no other treatment excepting opsonotherapy and Bier's treatment have such gratifying results been obtained. In the case of the patient complaining of pain in the hip and back it is questionable whether the pain was gonorrheal in origin, there being no evidence of articular inflammation.

The patient with gonorrheal myositis showed but little improvement after two weeks' treatment with serum alone, but responded promptly when Bier's treatment was used in addition.

Following the use of the serum injections a general urticarial eruption was observed in seven patients. Other than slight pain at the site of the injection and the urticarial eruption, accompanied by the most intense itching, no local or general toxic manifestations were observed.

1831 Chestnut Street.

ELEMENTS OF PSYCHIATRIC PROGNOSIS*

F. X. DERCUM, M.D.
Professor of Nervous and Mental Diseases, Jefferson Medical College; Neurologist to the Philadelphia Hospital.
PHILADELPHIA.

The prognosis of mental disease offers, as is well known, peculiar difficulties. These difficulties are due to our lack of knowledge of the morbid agents at work, of their mode of action, of the physical make-up of the patient, and in a still greater degree to imperfect clinical data.

THE ELEMENTS OF THE PROBLEM.

Our knowledge of the first group of facts, namely, of the morbid agents, is in itself most imperfect and is limited to a few of the agents concerned in the insanities of intoxication, to a few concerned in the insanities resulting from infection, and to a still smaller number concerned in the insanities of autointoxication, such as the diathetic insanities and the insanities dependent on thyroid derangement.

Our knowledge of the second class of facts, namely, those dealing with the structural peculiarities of the patient, is still more unsatisfactory; it is embraced in the rather vague conceptions conveyed by the term neuropathy. We can express our ideas concerning the latter only in a general way. A neuropathy means departures in morphology, arrests, deviations affecting the skull, the limbs, the nervous system, the vascular apparatus and other structures; in other words, it means departures from the normal of the organism as a whole. It follows that the ductless and other glands and the tissues generally, each of which contributes its modicum to the various fluids of the body, the blood, the lymph, the cerebrospinal fluid, as the case may be, are involved in the imperfect and aberrant development. It would seem that in neuropathy the conditions present are such as to imply a diminished resistance on the part of the nervous system on the one hand, and a toxic metabolism on the other. Further than such a general expression it is as yet impossible to go, however, and the difficulty of prognosis is still further increased by the great range of variation in individual cases both as to symptoms and course. In individual cases, in consequence, it is usually possible to make only general statements as to probability of outcome and none but the coarsest approximations as to duration.

Of necessity we are compelled to rely on factors purely clinical in their nature. Our clinical knowledge has made great and increasing advances. Since the epoch-making studies of Kahlbaum and Hecker, and especially since the more recent recognition of dementia præcox by Pick and its subsequent expansion by Kraepelin, our conceptions have become more and more clear. This is true not only of the dementia præcox group, but also of the manic-depressive group. Notwithstanding our knowledge, from the very nature of the subject, must continue to lack precision. No measure of exactitude can apply. As a rule, a general statement only as to the outcome may be hazarded and then only as to the outcome from an existing attack. None but very coarse estimations can be made as to duration, and none whatever as to possible recurrences or as to the extent of intervals of mental health. Owing to numerous and complex factors, at present indeterminate and indeterminable, such as the facts of causation and the facts embodied in the neuropathy of the patient, the degree of his resistance and his power of repair, the problem of prognosis must unquestionably remain in given cases very difficult.

The points which enter into the problem are: First, the clinical form assumed by the mental disorder; second, the presence or absence of actual quantitative mental loss; third, the systematization of delusions; fourth, the fixation of symptoms; fifth, age; sixth, sex; seventh, the presence of morphologic or somatic stigmata; eighth, the significance of heredity; ninth, the bearing of social status.

APPLICATION OF DATA TO PROGNOSIS.

Mental diseases can be roughly divided into two classes. The first class consists of those which are essentially neuropathic—that is, autogenetic. This class includes dementia præcox, paranoia, the manic-depressive group and the neurasthenic insanities or psychasthenias. The second class includes those dependent on infection, intoxication, trauma or other extraneous causes—that is, affections which are exogenetic. This class includes many forms of delirium, confusion and stupor.

Obviously these two classes present primarily widely differing factors in prognosis. It goes without saying that the prognosis of the first class is in general terms far less favorable than that of the second and it will serve our purpose best to begin with a consideration of one of the groups of the latter—for instance, the heboid-paranoid group, the groups to which the general term of dementia præcox has of late years been applied. We are all familiar with the statements made by the great exponent of the modern view of dementia præcox, Kraepelin, regarding the probabalities of recovery in hebephrenia, catatonia and in dementia paranoides. The proportion of recoveries given by him for hebephrenia, namely, 8 per cent., and for catatonia, 20 per cent., I believe to be too low. There can be no doubt that if the milder extramural cases were included the proportion of recoveries would be higher. However, even if we had definitely determined the average proportion of cases of recovery, this of itself would be of but little value in the prognosis of individual cases. Unfortunately also the attitude of physicians in regard to dementia præcox is such as to negative a consideration of individual prognosis, for the very name of the affections implies an unfavorable outcome. Nevertheless, the remarkable improvements, not to speak of the complete recoveries now and then observed, both in hebephrenia and catatonia and even in paranoid forms, make it imperative that each individual case be studied for itself. The question arises as to the principles that should here be applied.

The members of the heboid-paranoid group, hebephrenia, catatonia and paranoid dementia, are so closely related that they can safely be considered together.

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If the first of the list of factors, namely, the form assumed by the mental disorder, be now applied, it is noted, of course, that the presence of catatonic symptoms lends a more favorable aspect to the prognosis than does hebephrenia, while dementia paranoides is the least favorable form of all. This result is, however, of general value only.

On the other hand, the second factor, namely, that as to the presence or absence of quantitative mental loss, that is, of true dementia, furnishes a test which, when it can be applied, is of very great value. Its application is often very difficult, and yet if certain elementary facts be borne in mind the application frequently becomes possible. As I pointed out some two years ago in a paper read in Baltimore, in both hebephrenia and catatonia, it is confusion and not dementia which dominates the clinical picture. All of the elements of confusion are present, hallucinations and illusions, associated with fugitive, changing, unsystematized delusions. In periods of excitement this confusion may attain the intensity of delirious episodes, or, on the other hand, it may deepen, as it habitually does in catatonia, into stupor. Delirium, confusion and stupor are, of course, closely related states, and that they may occur in varying degrees in hebephrenia and catatonia, is, of course, a matter of common experience. The element of confusion in dementia præcox is habitually lost sight of in the discussion of the subject.

Because of the name we habitually think of dementia præcox as a disease which is a dementia primarily and of which the dementia is the most prominent feature. Let us see whether the facts really justify such a position. If we compare the symptoms presented by a case of unquestionable dementia, such as a senile dementia, with the symptoms presented by a case of dementia præcox, we note striking differences. The use of the term "dementia" should be limited to a quantitative change of mind, that is, to the loss of faculty and not to a mere change of quality or change in the mode of action. In a case of simple senile dementia, that is, a case uncomplicated with hallucinations or delusions, we find in the very beginning an impairment of memory, an impairment which makes itself evident at first in the failure to remember how the daily tasks that make up the life of the individual are to be performed, in forgetfulness of the daily duties, obligations and proprieties. As is well known further, this loss of memory involves at first recent events, those which have made the least profound impression upon the mind. It is hardly necessary to dwell here on the characteristics of this impairment. We need only recall the loss of names of common objects, the names of intimate friends and relatives, of the needless repetition of statements, of the garrulousness of old age. No comment is necessary to illustrate these well-recognized inroads into the mental integrity. Professional attainments, languages, the whole of the acquired knowledge of the middle and finally the adolescent periods of life are lost, leaving nothing but the acquisitions of earliest age and sometimes not even these. Compared with this condition of memory, that which obtains in dementia præcox is strikingly different. Disorders of memory are not, to say the least, the initial features of dementia præcox. Indeed, as is well known, memory is, in the beginning and for a long time after the affection has become established, well preserved. It is only after the disease has persisted for a relatively long time that actual loss of memory becomes evident. Further, in dementia præcox, the consciousness of the patient—stuporous states, of course, excepted—usually remains remarkably clear. In true dementia, such as is seen in senile dementia, consciousness, on the other hand, is usually more or less clouded. Still further, in dementia præcox, orientation, a function dependent on the integrity of a great group of complex faculties, is well preserved, the patient being usually in correct relation with his environment—of course, again excepting stuporous states. In dementia, as illustrated by senile dementia, there is frequently gross impairment of orientation, the degree of this impairment being in direct relation to the degree of quantitative mental loss. It is only at a relatively late period that dementia præcox presents changes alike in memory and in orientation. In keeping with this view Regis, Christian, Anglade, Macpherson, Knapp and others classify dementia præcox under confusional insanity.

Many facts also suggest that dementia præcox is due to a toxin or toxins and if so this would bring dementia præcox within the range of the toxic confusions.

The first problem, therefore, presented by a given case of hebephrenia or of catatonia, is to determine the presence of actual mental loss. If such mental loss can not be demonstrated, and if the symptoms of confusion alone are present, the case should be regarded as one in which improvement or recovery is still possible. Under these circumstances we have certainly no right to predicate a necessarily unfavorable outcome.

The determination of the question of mental loss may under given circumstances — that is, in stuporous or deeply confused states—be one of extreme difficulty. However, the mere fact that confusion and stupor are the dominant features lends presumption to the view that they and not dementia are present.

The next point that presents itself is that of the systematization of delusions. Systematization must be considered as a feature apart from fixation, because systematization and fixation do not necessarily go hand in hand. As is well known, systematized delusions that are not fixed constantly occur and, on the other hand, many mental phenomena are met that are fixed and yet do not consist of systematized delusions. The systematization of delusions embraces primarily two distinct factors:

First, in order that delusive ideas should be coherently and logically arranged it is to be presupposed that the mind must have attained a certain degree of development. It is a well-known fact, pointed out statistically years ago by Pickett, that the paranoid cases are found among patients distinctly older than in catatonia or hebephrenia. While in the hebephrenic and catatonic the hallucinatory states are associated with and perhaps give birth to painful delusive ideas, these ideas are not arranged, the suffering of the patient is not logically reasoned out and systematization does not result, although the patient in a vague way presents the paranoid attitude of mind in so far as he projects the causes of his sufferings to sources that are outside of himself. Painful ideas characterized by suffering, torture, poisoning, burning, mutilation inflicted on him, are usually present in such number and such prominence as to dominate the picture and to indicate clearly the reference by the patient of his sufferings to agencies in the external world, and yet systematization is not present. On the other hand, cases are met, both of hebephrenia and catatonia, in which, especially in the older hebe-

phrenics, the delusions are more clearly paranoid; so much so, indeed, that one is sometimes in doubt whether to classify the case among the hebephrenics or among the paranoid dementias.

It has been the habit to regard cases presenting paranoid delusions as cases in which an unfavorable outcome is foreshadowed. However, it is also a matter of experience that the existence of systematized delusions does not necessarily mean permanency. Time and again it is noted that delusions, though systematized, are poorly systematized and again that they are changeable, manifold and shifting. Time and again improvement and actual disappearance of delusions are noted in such cases. Indeed, even patients in whom a paranoid system of well-defined delusions has been observed may recover. Such a case has been reported by Dewey, and I have myself observed two such instances, one of them during the past year. The patient was a man in the early forties in whom a series of persecutory ideas, associated and possibly based on hallucinations, made their appearance. They persisted for many months, and yet along with an improvement in the general health they disappeared just as completely as do the symptoms of confusion in other cases, the man making a complete recovery.

Another factor to be considered in the systematization of delusions is the intensity of the symptoms. If the mental disturbance be attended by marked excitement and the rapidity of the elimination of ideas be greatly increased, confusion dominates the picture; if the intensity of the disturbance be less pronounced, if, in other words, the confusion is mild in degree, systematization or — perhaps better — pseudo-systematization may be present. Thus the same case of hebephrenia or paranoid dementia may present a varying picture.

In answer to the question whether systematization of itself negatives recovery, or whether it greatly increases the improbability of recovery, it must be admitted that in the larger number of cases systematization must be regarded as a very unfavorable sign. If the delusions lack fixation, however, if they remain ill-defined, and especially if they vary markedly from time to time, the possibility of their disappearance must at least be conceded.

The question of fixation demands special consideration. I am in the habit in my lectures of defining a delusion as a false belief concerning which the person holding it is incapable of accepting evidence—that is, such evidence as is accepted by the average or normal mind. A delusion presupposes some break in association, either temporary or permanent. If the break in association is temporary, such as would be induced by the action of a toxin, the delusions would of necessity be temporary only and we would be inclined to expect a shifting picture of delusive beliefs. It is only when a delusive belief has become fixed that we have the right to conclude that the break in the association has become permanent. It is fixation, therefore, which is the unfavorable sign and not mere systematization. Systematization and fixation, it is true, commonly go hand in hand, but they are not necessarily correlated—not necessarily associated. Fixation, as is well known, occurs in association with other mental phenomena such as those presented by the special forms of fear, by the insanity of indecision, by the defects of will and of inhibition met with in psychasthenias and of which persistence is a well-known characteristic. Fixation in association with systematization of delusions is necessarily a factor of unfavorable prognosis. Fixation greatly lessens the probability of recovery.

The remaining points entering into the prognosis may be considered rather briefly. As regards age, a priori considerations are confirmed by clinical experience, namely, that other things being equal, the younger the individual the greater the possibility and probability of recovery. This can be distinctly claimed for the heboid-paranoid group and it is undeniably true of the manic-depressive group. Cases of hebephrenia or catatonia manifesting themselves relatively late present a greatly lessened prospect of recovery. For instance, in the earlier catatonics, the percentage of recoveries is relatively large; in the late catatonics it is relatively small. As regards the manic-depressive group, it is absolutely true that the prognosis of the individual attacks is infinitely more favorable, especially as regards duration in the younger patients, that is, those of the third decade as compared with those of the fourth and fifth decades of life. How much more prolonged a middle-age melancholia is than a melancholia of early life need not be dwelt on. In general terms, the psychoses met in middle life and old age are far more serious in their outlook both as to duration and eventual outcome than are those of early life.

The sixth point, that of sex, is so extensive as to preclude extended consideration here. Suffice it to say that the relation of the menstrual function to fluctuations in the psychoses must be borne in mind, as must also the unfavorable influence of a prolonged menopause on duration.

The seventh point, the significance of morphologic or somatic stigmata, that is, stigmata indicative of imperfect evolution, next claims attention. Briefly, it may be stated that when markedly present or when present in large number, they are in keeping with defective or aberrant mental development. Again, unless present in marked degree, they have none but indirect bearings on the problem of prognosis, as they are sometimes found associated with entire mental health.

What significance should be attached to the eighth point, namely, that of heredity? That a history of insanity in the ancestry has a profound significance in all cases of mental disease goes, of course, without saying. Sometimes, indeed, it has a special significance as, for example, in melancholia, a disease which occasionally repeats itself with fatal similarity in successive generations. A neuropathic heredity explains in a sense the occurrence of an insanity, but it influences the prognosis of a given attack in only a general way; it can not give us a definite clue as to either outcome or duration. However, it always influences unfavorably the prognosis as to permanency of recovery. Further, it may also influence the prognosis as to the course of an attack. Thus, if neuropathic heredity be pronounced, the course will probably be wave-like, or the symptoms may in other ways indicate a periodic or cyclic course.

The remaining point, that of the social status of the patient, is in given cases of considerable importance. A higher social status implies, other things equal, an ability on the part of the patient to provide himself with better surroundings than those which he can secure in institution life. There can be no question that the prognosis of a given case of hebephrenia or of catatonia is greatly enhanced by circumstances which permit the carrying out of elaborate methods of inducing hyper-

nutrition, that is, methods embodied in absolute rest, full feeding, massage, bathing and the other physiologic methods found so useful in the treatment of exhausted states. The great importance of trained nursing and individual nursing must also be recognized. There can be no doubt, for instance, that the percentage of recoveries and of improvement in hebephrenics is greater under such methods of treatment. Unfortunately, elaborate methods, such as are necessary in a properly conducted rest cure, are expensive and are beyond the reach of the great mass of patients in mental cases.

As regards the class of cases which comprises those not essentially neuropathic, that is, those whose mental disturbance is dependent on infection, intoxication, trauma or other extraneous causes, they present, as is well known, other things equal, a favorable prognosis. Of course, the most favorable are the simple toxic deliriums and confusions. If elements of neuropathy are present these proportionately diminish the favorable outlook.

SUMMARY.

In summarizing the considerations contained in the above paper, I would lay stress especially as of importance in the prognosis of mental diseases on: First, the presence or the absence of actual dementia; second, the presence of systematization of delusions; third, the presence of fixation; and, fourth, the social status of the patient.

The limits of this paper will not permit me to discuss the prognosis of the various clinical forms or even special questions that play an important part in the prognosis. Among the latter may be mentioned the influence of the bodily condition and the significance of visceral complications. In a general way only it may be said that if there be marked physical improvement without corresponding mental improvement, the prognosis becomes proportionately unfavorable. Equally true is the converse, that is, the less frequent condition in which there is mental improvement without physical improvement; such cases should always be regarded with suspicion. Again the marked persistence of hypochondriacal ideas, especially of ideas of somatic and psychic negation, that is, belief in the absence or destruction of viscera, of psychic non-existence, or psychic perpetuity (the belief that the patient is dead or, on the other hand, that he can not die) are not infrequently found associated with chronic and non-recoverable cases.

Special factors, such as interruption and cessation of progress also influence the prognosis unfavorably. Similarly, an incomplete recovery renders recurrence not improbable. Further, one attack presenting a wave-like course raises the presumption of other attacks in the future.

Among favorable features may be mentioned regularity of course, concomitant physical and mental improvement, and, finally, the realization on the part of the patient that he has been ill.

1719 Walnut Street.

DISCUSSION.

DR. W. T. WILLIAMSON, Portland, Ore.: Dr. Dercum is disposed to deprive dementia præcox of the element usually considered the basic fact, that is "dementia," and supply in its stead simply "confusion." It has been rather difficult to separate one form of it, the paranoidal variety, from true paranoia, and the method by which we could, if at all, keep them apart, was by the recognition of dementia of a true type as a feature of the dementia præcox, and the dementia of paranoia, when present, as being simply a pseudo form. The fixity of a delusion depends on the strength of the mind in which it rests. If there is a great degree of dementia present it would appear to be impossible for a delusion to maintain itself as one of fixity; and therein I think we would find a difference between the paranoidal form of dementia præcox and true paranoia. The paranoiac must have strength to cling to a belief, especially if it be surrounded with systematized delusions that give it an air of possibility. I would like Dr. Dercum's opinion as to whether it is not true that one of the distinctive features of difference between dementia præcox and paranoia would be the existence of true dementia in the former and only of a pseudo-dementia in the latter; and whether also it is not true that in those hebephrenic forms which have such a comparatively favorable prognosis as to recovery, there is not foreshadowed and threatened the same terminal dementia that characterizes cases which do not recover, or which because of the removal of the toxic or other agencies which tend to the perpetuation of the condition, simply escape before this change has taken place.

DR. ALBERT E. STERNE, Indianapolis: We should take out of the group of dementias what does not belong there; we should reserve our conception of dementia for that which goes hand in hand with an organic decay, an actually destructive lesion of the brain cell, a practically incurable condition—a true dementia. Dr. Dercum mentions the quantitative loss, but means no doubt to include the qualitative loss also in mental acuity. I have frequently been deeply impressed with this feature of the prognostic aspect of the various insanities. It has seemed to me that most physicians are not sufficiently ready to regard those mentally ill as sick people. This is especially true, it seems to me, of the acuter conditions. I have through a long term of years come to the belief that mental conditions do not rise out of the surrounding ether, but have a distinct basis; that these patients are sick. I have never been, in meeting mental conditions, more deeply impressed with the truth of this than in those cases to which Dr. Dercum refers, namely the confusional type, especially in the hebephrenic class. It has been my invariable custom to treat these patients as seriously sick and to keep them in bed. Temperature and heart action should be carefully watched. I have been surprised innumerable times to find a rise in temperature sometimes up to 102, possibly a little higher—with a disturbance of the heart action—a marked irregularity in several cases. I have been imbued with the feeling that these cases are of cerebral character—a true inflammation of the cerebral tissue. I have not been able to believe that we are dealing merely with toxic conditions because the heart action does not simulate that which we see in those cases which we term toxic insanities ordinarily. The prognosis in these confusional cases is not so bad. I agree with Dr. Dercum that the relative number of recoveries in this class of cases is much higher than is commonly believed; and I believe it is the fault of the treatment rather than the condition itself which makes the number of recoveries low. By this I mean that we are inclined to neglect the truly serious physical aspect of such cases on account of the prominence of those symptoms commonly designated as mental.

DR. F. X. DERCUM: It is easy to differentiate between dementia præcox and simple dementia. In an ordinary case of senile dementia, among the early symptoms are failure of memory, of orientation, and gradually the faculties generally. Preservation of memory, even in cases which become finally demented, and full preservation of orientation exist in dementia præcox. The term *démence précoce* is unfortunate and has given rise to an unfortunate mental attitude with regard to these cases. Dementia præcox occurs in a very large number of cases in persons who are neuropathic—who are organically and structurally defective. There are in them some disturbances of development, arrests or deviations involving the organism as a whole, the nervous system, bones and muscles, cardiovascular apparatus, and no doubt also the ductless glands. When puberty is reached and the organism is obliged to adapt itself to new conditions, it can not meet the demands made on it; the patients become toxic, suffer from a toxic metabolism and present the mental symptoms of toxic

confusion. A case of organic dementia certainly presents a very different picture from dementia præcox. Hebephrenia, catatonia, paranoid dementia, paranoia hallucinatoria and paranoia simplex are all closely related. They form a natural series. As practical physicians we ought to remember that many of the patients, though they are defectives, are suffering in addition from exhaustion and that frequently they can be improved and at times even cured by rest and hypernutrition, methods that are beginning to be used more and more.

EPIDEMIC INFANTILE PARALYSIS.*

M. ALLEN STARR, M.D., LL.D., Sc.D.
Professor of Neurology, Columbia University.
NEW YORK.

During the summer of 1907 an epidemic of infantile paralysis occurred in New York City and its vicinity. The number of cases (probably over 2,000) was so many, the extent of the disease in the city and along Long Island Sound into Connecticut and up the Hudson River as far as Ossining was so rapid, the severity of the cases was so intense and deaths from the disease so frequent, that the epidemic excited a great amount of interest both among the laity and the profession. It seems wise, therefore, to put on record some special account of this epidemic, to call attention to particular clinical features that were presented, to trace the course of the cases as far as possible, and also to bring together an account of other epidemics that have occurred in the past, inasmuch as a large number of records have now accumulated concerning the prevalence of this disease in epidemic form.

Through the kindness of Dr. Simon Flexner I am enabled to present the results of a biological study, made by Dr. Martha Wollstein at the Rockefeller Institute, of the cerebrospinal fluid from cases of the disease, and also the results of an autopsy on one case.

THE COURSE OF THE EPIDEMIC IN NEW YORK.

The epidemic of poliomyelitis occurring in the city of New York in 1907 began about May. The number of cases increased steadily during June and July, the height of the epidemic occurring in August and September. Cases continued to appear in October, and a few were reported in December. The epidemic was widespread, cases occurring not only in the city of New York, but also in Brooklyn, Long Island City and the Bronx. Some cases were also reported on Staten Island, and many cases were seen along the Hudson River as high as Ossining, which is fifty miles from New York. Cases were also reported along the sound at Mount Vernon, Stamford and Norwalk (forty miles from New York), and in some of the valleys of Connecticut within twenty miles of the sound. Cases were not observed in New Jersey or in the suburbs of Newark. It is estimated that nearly 2,000 cases of the disease occurred during this epidemic, and the mortality was probably 6 per cent. to 7 per cent.

The summer, though a hot one, was not unusually so; but it was unusually dry, the reports of the weather bureau showing that the rainfall was 1.18 inches in July and 2.48 inches in August, less than half that of previous years. Other infectious diseases were not particularly prevalent.

In but few of the cases of infantile paralysis recorded had there been any preceding infectious disease.

The onset of the disease was uniformly accompanied by a brisk febrile movement, temperature rising to 101 to 103 in the first twenty-four hours; sometimes by a slight chill (but this was the exception); usually by vomiting, malaise, general sweating, general severe pains in the limbs and in the back, sometimes attended by some rigidity of the spine and even in some cases by retraction of the head giving rise to the suspicion of a beginning meningitis. The excessive sweating which attended the fever has been observed in other epidemics, and is interesting in view of the fact that it implies an involvement of the vasomotor centers in the gray matter of the cord. Diarrhea frequently followed on the second day and continued for two or three days. Delirium was a common accompaniment of the fever on the second or third day. The febrile movement lasted from five to nine days in the majority of the cases. It was rarely attended by very high temperature, and even in the fatal cases temperatures above 104 were the exception. On the third or fourth day of the disease the paralysis was discovered. It may have developed a little earlier, perhaps on the second day in some of the cases, but the children were confined to bed; they were usually extremely tender to touch and showed such pain on movement that they were allowed to lie quiet, and hence the paralysis very often escaped notice until the third or fourth day. It usually appeared with considerable suddenness and at its maximum extent from the beginning. It remained as the chief symptom after the fever had subsided and after the pains had become less. In the vast majority of the cases the legs were chiefly affected. In some of the cases the disease affected the arms as well; in some cases the muscles of the back and even of the abdomen were affected. In a few cases paralysis extended to the neck and to the face, and in a few cases the eye muscles were also involved. The picture was, therefore, in some cases that of poliomyelitis of the ordinary recognized type; in other cases, of poliomyelitis with bulbar paralysis; in other cases, of poliomyelitis with polioencephalitis of Wernicke. In a few cases it was noticed that the children were affected by true infantile hemiplegia; and this disease appears to have been more common during last summer than usual, although by no means occurring in such frequency as poliomyelitis. The increased frequency, however, of the disease leads to the natural supposition that the infectious agent in some cases involved the motor nuclei of the lower segment, the spinal cord, the medulla, pons, and crus, and in other cases involved the motor nuclei of the cortex, producing the infantile hemiplegia or encephalitis of Strumpell.

In the cases of poliomyelitis where the legs were affected it was not at all uncommon to have retention of urine and loss of control of the bladder extending through several days, but in no case has a permanent loss of control been found. In many cases where the arms were affected the respiratory muscles were also involved, and in fatal cases death occurred from respiratory paralysis or from heart failure rather than from any febrile affection. When the face was affected a typical Bell's palsy was usually present with inability to close the eye and with a reaction of degeneration in the facial muscles. In the cases where the eyes were affected strabismus, either internal or external was observed, but this, as a rule, was temporary and in no cases that I have seen has a permanent strabismus remained. The paralysis was always of the flaccid type

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with rapidly following atrophy in the muscles and a rapid loss of faradic reaction.

The pain, which was a very marked symptom in almost all the cases, was referred to the muscles or to the back; was greater in the part that was paralyzed, though usually felt all over the body; and in some of the cases was attended by a hypersensitiveness to heat and cold, or to one or the other. Pain is a usual symptom in anterior poliomyelitis. It is undoubtedly due to the intense congestion of the gray matter of the spinal cord through which the pain and temperature tracts pass. Anesthesias were not observed. The limbs, however, soon became cyanotic and cold and remained so. In many cases an extreme hypersensitiveness to pain, especially the pain of the electrical current, was noticed, and in many cases this persisted.

The acute onset usually subsided in the course of a week or ten days and a state of improvement was noticed beginning at the end of the second to the fourth week. This improvement in a vast majority of cases has continued up to the present time, and as a rule such improvement is likely to go on for two years.

It has also been noticed that in many cases a complete recovery has ensued. In these cases the paralysis was never very intense but still was marked; in other cases it amounted merely to a sense of great fatigue and unwillingness to use the muscles for a week or ten days, followed by entire recovery. The frequency with which such cases, which might be termed "abortive cases," was observed is rather unusual, though in other epidemics the same type of cases has been noticed. On the other hand very rapidly fatal cases were observed, and, although the mortality is somewhat indefinite, it may be stated that it amounted in this epidemic to about 7 per cent. As death is a very rare occurrence in sporadic cases, the mortality in this epidemic is remarkable.

A number of these cases were very carefully studied by Dr. Martha Wollstein in the Rockefeller Institute for Medical Research under the direction of Dr. Simon Flexner. Through their courtesy I am enabled to present their results, which will be more fully published by them later. The following statement has been prepared by Dr. Wollstein.

A BIOLOGIC STUDY OF THE CEREBROSPINAL FLUID IN ANTERIOR POLIOMYELITIS.[1]

Twenty cases were studied in children ranging from 5 months to 8 years of age; nine were over 2 years, and four were under one year. Cerebrospinal fluid was obtained by lumbar puncture from the second day to the eighth week of the disease, as follows:

2nd day, 1 case. 7th day, 2 cases. 3rd week, 6 cases.
4th day, 2 cases. 10th day, 2 cases. 4th week, 1 case.
5th day, 1 case. 11th day, 1 case. 5th week, 1 case.
6th day, 1 case. 12th day, 1 case. 6th and 8th week (same case) 1 case.

The fluid was always clear and colorless, unless mixed with blood. Smears prepared at once, after centrifugalizing five to thirty minutes, and after twenty-four hours' incubation, were stained with methylene-blue and with Gram's method. In fourteen cases cellular elements were entirely absent; in six cases a few mononuclear leucocytes were found. Large numbers of leucocytes were never present.

Cultures were made in plain agar, ascitic-agar, and blood-agar, and in plain and ascitic bouillon. They were incubated both aerobically and anaerobically. In fifteen cases the fluid was sterile by both methods. In one a white staphylococcus grew; in one a Gram positive bacillus and in three a large, Gram positive coccus appeared in tetrads and pairs within large groups. It grew abundantly on all ordinary culture media, and was apparently similar to the coccus described by Geirsvold. The fluids from which the coccus was cultivated in my cases were withdrawn on the fifth day, sixth day and in the fifth week after the onset. In two cases it was present in one specimen of fluid only, subsequent punctures withdrawing sterile fluid. In the third case the coccus was cultivated from a second specimen obtained three days after the first, or on the eighth day of the disease; two later fluids from the same patient proved to be sterile.

The coccus was looked on as a contamination.

An autopsy was obtained in one case only. It was that of a boy 2½ years old who died of tubercular meningitis two months after the onset of his poliomyelitis. An area of softening was found in the lumbar region of the spinal cord, 3 cm. long and affecting only the right anterior horn. There was also a general miliary tuberculosis involving the cerebrospinal meninges, pleura, lungs, spleen, liver, lymph nodes and intestines. Microscopic examination of the cord lesion showed that it was in the subacute stage and limited to the anterior horn.

The spinal cord, medulla, sciatic nerves, tibial muscles, and all the internal viscera were ground up, dried, and extracted (Levaditi and Marie's method) to be used in the complement deviation tests.

Blood was obtained from the median basilic vein in seven cases, 5 to 10 c.c. being withdrawn. Blood cultures in two acute early cases were negative.

Complement binding experiments were made in four different ways:

1. Cerebrospinal fluid from the most recent case (second day) was tested against the blood serum of cases suffering from the disease for five days, three weeks and eight weeks respectively. No binding of complement resulted; hemolysis complete.

2. Same fluid with the fluid from a late case, eighth week. Results the same.

3. Serum against cerebrospinal fluid from the same case, as well as against the fluid from more early and more recent cases. No binding of complement; hemolysis.

4. Extracts of spinal cord, medulla, sciatic nerves, tibial muscles and liver were tested with the serum from cases of poliomyelitis in the eighth week, third week and on the tenth day after the onset. No binding of complement; hemolysis complete. Controls were made with normal organ extracts and normal serum with identical results.

It was unfortunate that no uncomplicated autopsy could be obtained; but the results of the tests show that the diagnosis of poliomyelitis by means of a serum reaction is apparently not possible. No light is thrown on the etiology of the disease by this means.

THE BACTERIOLOGY OF THE DISEASE.

The question of the bacterial origin of this inflammatory process has excited the greatest interest during the past few years. Authorities are not as yet agreed on this question. A number of years ago Schultze described a case of anterior poliomyelitis in which he had

1. From the Rockefeller Institute for Medical Research, New York.

found a diplococcus in the cerebrospinal fluid, and in isolated cases here and there through literature confirmation of this finding has been recorded. In the epidemic in Norway reported by Geirsvold a diplococcus was observed in a number of the cases. Harbitz and Scheel[3] described carefully the pathology of seventeen cases examined in this epidemic. They described the infiltration of the spinal pia with lymphocytes more marked on the anterior surface of the cord and following the sheath of the central arteries and veins. They describe a very marked condition of hyperemia, edema and exudation within the spinal cord and a marked cell infiltration in the gray matter of the anterior horns. They describe the infiltration of the vessel walls in the white substance with lymphocytes and a typical degeneration of the ganglion cells, but only in a few cases was there any evidence of the presence of micrococci. These were of the nature of diplococci, but were not uniformly found. In the careful autopsies made by Wickman in the Swedish epidemic the same conditions were observed and here again there was an absence of any uniform finding of bacteria. In eight autopsies careful cultures were taken; in four the result was negative, in one *Staphylococcus albus* was found, and in the three others *S. aureus* was discovered. These were considered as accidental infections of the test-tubes and not as causative agents of the disease. In the cases examined in the Rockefeller Institute in the epidemic in New York bacterial investigation was also negative.

While, therefore, the clinical history of the disease implies an infection, it must be admitted that up to the present time the organism responsible for the disease has not yet been discovered and that it is still a matter of uncertainty whether the causative agent is a micrococcus or is a toxin. The weight of evidence is, however, in favor of the latter hypothesis.

EPIDEMICS OF INFANTILE PARALYSIS.

A careful search through literature has shown that epidemics of infantile paralysis are more common than has been supposed. It has been possible for me to collect from original sources accounts of forty-four such epidemics, and as these have not hitherto been collated they are presented here in the order of their occurrence:

COLMER[4] saw a case of infantile hemiplegia in West Feliciana, Louisiana, in the fall of 1841 and was informed that ten other cases of infantile hemiplegia or paraplegia had occurred during the preceding three or four months within a few miles of the residence of the patient whom he saw. All the patients were under two years of age and all had recovered completely, or were improving.

In view of the accounts of subsequent epidemics here gathered, there seems to be no doubt that this was a true epidemic of infantile paralysis. Complete details are not to be found.

BERGENHOLTZ[5] first reported an epidemic which occurred in 1881 in the town of Umea, North Sweden. Thirteen cases were observed, but a full account was never published.

CORDIER himself[6] observed in June and July, 1885, in the town of Saint Foy, near Lyons, France, thirteen cases in a town whose population was fifteen hundred. Other cases were recorded and heard of in the same locality. These cases all occurred within the months of June and July; and of the thirteen cases, four died within four days of the onset, of respiratory paralysis. In all cases the onset was accompanied by fever, by severe pains and marked sweating. The incubation period was thought to be between ten and thirty-six hours. Almost all of the patients were infants under the age of 3, the youngest being 3 months old, several of them 6 or 7 months old. One man of 27, the brother of a little girl of 9, was the only adult affected. As the majority of the patients were nursing babies, it was thought that food could not have been the source of the infection. It was noticed that retention of urine occurred in one case. In ten of the cases the legs were affected, and in six cases one or both arms.

OXHOLM[7] reported an epidemic in Mandel, Norway, in July, August and September, 1886. Nine cases were recorded without any deaths. The children were between six months and four years of age, and the onset was accompanied with fever in all cases.

MEDIN[8] observed an epidemic in Stockholm between the months of May and November, 1887. Forty-three cases were reported, in which there were three deaths. In many cases it was noticed that there was retention of urine from one to three days at the onset of the disease. Convulsions occurred in two cases. Bulbar symptoms occurred in nine cases; facial paralysis in three cases alone, and in five cases, in connection with paralysis of the limbs. In one case the muscles of the eyes were involved, and in one case a condition of hemiplegia corresponding to the polioencephalitis of Strumpell was observed. It was noticed in this epidemic that several cases occurred in one house, a brother and sister being affected together in one or two instances. Medin, who made this the subject of an important address at the Tenth International Medical Congress in 1890, was the first to call particular attention to the epidemic occurrences of infantile paralysis.

PUTNAM[9] observed in the summer of 1893 an unusual prevalence of cases of infantile paralysis appearing in the dispensaries of Boston. This can hardly be called an epidemic, for the patients came into Boston from several towns in the vicinity and the disease did not appear to be exceptionally prevalent in the city of Boston; but Putnam called attention to the fact that while in four of the dispensaries in the previous year the average number of patients was six or eight, in the year 1893 twenty-six cases were observed in the months of August and September. In none of the cases that he saw did a fatal result ensue, but all the children were left with some permanent paralysis.

ANDRÉ[10] saw four out of nine cases of infantile paralysis observed at Saint Girons, near Toulouse, in France, and in its two adjacent towns, Cescan and Seix, in July and August, 1893. These all occurred in infants under the age of 3 years, with fever and general symptoms of infection. A brother and sister were first taken, then two children in a house very near to them, then other isolated cases. Two out of the 9 cases presented cerebral symptoms. They all recovered.

CAVERLY[11] reported the first serious epidemic in this country, which occurred in Rutland, Vt., between July and September, 1894. Rutland lies in a valley; and it is interesting to note that in a large number of these epidemics the site of the occurrence has been near a stream in a narrow valley during a summer which has been extremely hot and rather dry, when the brooks run low and the stream is below its ordinary limits. This was the case in Rutland. Caverly records 126 cases, with eighteen deaths; 85 patients were under the age of 6, 21 between 6 and 14, and 13 over the age of 14, so far as the ages were recorded. In the majority of instances the disease began with a febrile onset; pain was noticed in many, so that for a time it was supposed that the disease might be a mild type of cerebrospinal meningitis. Convulsions occurred in many cases; in quite a number there was retention of urine; in two there were bulbar symptoms; in one the face was paralyzed and in one some of the muscles of the eye. In the course of this epidemic it was noticed that a good many individuals were affected with an acute febrile onset, great prostration and much fatigue, where the disease did not go on to a true

3. Deutsch. med. Wochnschr., 1907, No. 48; also THE JOURNAL A. M. A., Oct. 26, 1907, p. 1420.
4. Am. Jour. Med. Sc., January, 1843, p. 248.
5. Bergenholtz, reported by Medin: Verhandl. d. x, Internat. med. Cong., Berlin, 1890.
6. Lyon méd., Jan. 1, 1888.
7. Oxholm, reported by Leegard: Neurol. Centralbl., 1890, 760.
8. Nord. med. Ark., 1896, No. 1.
9. Putnam, J. J.: Boston Med. Jour., Nov. 23, 1893.
10. Comp. rend. du Cong. de méd. de Bordeaux, 1895, 352.
11. Caverly: New York Med. Record, Dec. 1, 1894; also MacPhail, Brit. Med. Jour., 1895.

or permanent paralysis, and in a great many cases an entire recovery occurred. The legs were affected to a very much greater extent than the arms. It was noticed that in this epidemic animals—horses, dogs and chickens—were also affected.

PIERACCINI[12] observed a small epidemic in Monte Spertoli, a small village not far from Florence, Italy, lying on the side of a mountain in quite a high altitude and a dry locality. This epidemic occurred between June 23 and August 10, 1895. There were but 7 cases, all the patients being under the age of 5. In 6 of the cases the legs were affected, in one case an arm, and in one patient internal strabismus was noticed. These patients all recovered.

BUCCELLI[13] saw a number of cases in the Ravieca quarter of Genoa in 1895. Other quarters of the city did not present similar cases. Two occurred in one house; two others were brothers; and during this epidemic it was noticed that several cases of cerebral palsy occurred at the same time, two of them in the same house with a case of spinal paralysis. These cases were not particularly severe. The legs were affected in the majority of instances. They all occurred with febrile movement. Buccelli adds that at the same time an epidemic prevailed in Arenzano, a small suburb of Genoa. Five cases were observed within a few days by Dr. Luciani.

MEDIN[14] observed an epidemic in Stockholm in the summer of 1895, which he reported with great care. There were 20 cases observed between the months of June and September. Three of these cases presented facial palsy and five of them bulbar symptoms. In all of them the onset was accompanied by fever, and in the majority the paralysis affected the legs. There were no cases of infantile hemiplegia noticed at this time, and no deaths. Medin believed that there was a specific poison causing the infection and that in several cases it was probable that the direct contagion could be traced from one patient to another. This epidemic occurred in the latter part of the summer and early fall, at a time when infantile diarrhea was quite prevalent in Stockholm. The onset in the majority of cases was sudden, with fever and somnolence, but sweating was not specially noticed. Vomiting and diarrhea were common, and, in many cases, retention of urine. Pain and sensitiveness of the body were noted in very many cases. In two cases Medin considered the condition as probably polyneuritis rather than poliomyelitis, there being first pain, then hyperesthesia of the skin, followed by anesthesia of the legs. In five cases there was an acute ataxia which he also ascribed to peripheral neuritis. The fact that in both this epidemic and that which he observed in 1887, polioencephalitis acuta was observed in a number of cases led Medin to the conclusion that this disease was produced by the same infection as poliomyelitis, the only difference being in the location of the portion of the nervous system affected.

ALTMAN[15] observed an epidemic of eighteen cases at Port Lincoln, South Australia, during the months of March and April, 1896, the hot and dry months in Australia. This appears to be the first epidemic on record in Australia. Port Lincoln is a small town having a population of fifteen hundred. The patients were all over the age of 3 years. In two instances two members of the same family were affected. The symptoms began with fever and pain and the paralysis developed on the third or fourth day in all the cases. In one case there was retention of urine, in one case facial palsy; and one case was hemiplegic in its type. None of the patients died.

PASTEUR[16] observed at Much Hadham, in England, in the month of July, 1896, seven cases of infantile paralysis in one family living in the same house, all attacked within ten days. The neighborhood was a healthy one and there were no particular circumstances indicating in any way the cause of the disease. The children ranged in age from 1½ to 11 years. The first child had a paralysis of the left arm, the second had typical right hemiplegia, which was undoubtedly cerebral in nature, as the electrical reactions remained normal. The third and the fourth had fever for several days and general weakness, but had no paralysis. The fifth child had a typical spinal palsy of the left leg, the sixth had a febrile onset with general tremors and great prostration, with no paralysis, and the seventh child had a fever with a temporary internal strabismus. It would seem probable that in this family some poisonous agent had infected all the children who responded in different manners to the infection. There were no other cases observed in the neighborhood.

TAYLOR[17] saw in July and August, 1896, seven cases of infantile paralysis in Cherryfield, Me. This appeared to be infectious, as the second patient was a brother of the first, the third a cousin of the first and second, and the fourth was visiting in the house where the first three patients were affected. In all these four cases both legs were paralyzed and in three of them one arm was also affected. The fifth case was a little girl of 10 who died on the seventh day of the disease, the paralysis having ascended from the legs to the arms and affected the respiratory muscles. Two other cases were known to have occurred in the same town, but were not seen by Dr. Taylor. He also heard of two cases occurring at the same time in a neighboring town.

BONDURANT[18] reports fifteen cases occurring in Greene County, Ala., during the summer of 1896, both whites and negroes being affected. There were no deaths. Malaria was prevalent at the time.

BUZZARD[19] called attention to the fact that an unusual number of cases of infantile palsy were observed in a small district of London in September, 1897, and gives the details of eleven cases. Some of these developed subsequently to influenza. They were all children under 5, excepting one boy of 14. In two instances the patients were sisters, or a brother and sister. In one case there was retention of urine. In the majority of instances the legs were affected. In two of the patients the febrile onset was attended by great weakness, but rapid and complete recovery ensued. There were no deaths. Several other cases in addition to these eleven were heard of but not seen at the time.

TAYLOR[20] saw a rather unusual number of cases of infantile palsy at the Hospital for Ruptured and Crippled during July, 1897, and was under the impression that there might be an epidemic of the disease, though no other records of such an epidemic are to be found. The cases were widespread through the city of New York, and it is not certain that all had developed during the month of July, though it is quite unusual that twelve cases should appear at one hospital in one month in this city. He does not record this as an epidemic, but in a letter to the *New York Medical Journal* inquires whether it might be the beginning of an epidemic.

PLEUSS[21] records four cases which had been observed between June and September in Kiel. It does not appear, however, that this can be entitled to consideration as an epidemic, since the population of the city is so great. These cases might easily be accounted for as sporadic cases.

NEWMARK[22] of San Francisco records a small epidemic occurring in the town of Le Grand, Merced County, Cal., in June, 1898. It is a village of forty-nine people. Four children were affected, the first and second being brothers, the third a playmate of the first and second, and the son of the doctor who attended them. They were all boys from 8 to 10 years of age. The onset was with fever and the legs were paralyzed in all the cases. In one there was retention of urine for a week. None of the patients died.

PACKARD[23] records the fact that during the summer at Royersford, Pa., he had seen two cases of infantile paralysis developing in the same house within three days of each other in a brother and sister. This fact he considers of importance as supporting the infectious origin of the disease and also its possible contagion.

AUERBACH[24] records a small epidemic occurring in Frankfort-on-the-Main between May and December, 1898. There were nine

12. Lo Sperimentale, Sept. 21, 1895.
13. Il Policlinico, June 15, 1895.
14. Nord. med. Ark., 1896, No. 1.
15. Australasian Med. Gaz., 1897; Lancet, July 3, 1897.
16. Tr. Clin. Soc., 1897, p. 143.
17. Taylor, J. M.: Philadelphia Med. Jour., January 29, 1898.
18. Bondurant: Philadelphia Med. News, Aug. 18, 1901.
19. Lancet, March 26, 1898.
20. Taylor, H. L.: New York Med. Jour., 1897, p. 192.
21. Inaug. Diss., Kiel, 1898.
22. Newmark, L.: Med. News Philadelphia, Jan. 28, 1899.
23. Packard, F. A., Jour. Nerv. and Ment. Dis., 1899, 210.
24. Jahrb. f. Kinderh., 1899: Neurol. Centralbl., 1900, 466.

cases observed by him and several others were heard of. Two of these cases occurred in the same street. In one case facial palsy accompanied the paralysis of the arm and leg, but was of the peripheral type. In one case there was a recurrence of the disease in August after the first attack in June, a case which is worthy of notice as it is the only one that I can find on record of the occurrence in the same individual of two attacks.

ZAPPERT[25] describes an epidemic which occurred in Vienna in 1898. Two hundred and eight cases were observed during that year and these cases occurred chiefly in the summer between June and November. Infants under three were attacked and no cases were observed in which children in the same family were attacked. There was no relation to other infectious diseases.

WICKMAN[26] observed fifty-four cases during an extensive epidemic in Stockholm in the summer of 1899. Three patients died. The disease was attended by febrile onset and presented all of the characteristics of the epidemic type as seen in other epidemics. In three different houses two cases of the disease occurred, and in several families two or three cases were observed among cousins or brothers and sisters. The majority of the cases occurred in July, August and September, and almost all of the patients were below the age of 5. Wickman noticed that the disease was not generally spread through the city, but was particularly localized in certain parts, so that in neighboring houses in the same or in neighboring streets, groups of cases of three, five or seven were observed. In one instance there occurred a case in one dwelling-house from which the family removed on October 1. A second case developed in this same house in the family that moved into the rooms which had been vacated by the first family not long after their entrance. He considers this as a pretty good proof of the contagiousness of the infection, of which he saw many other examples in the epidemic of 1906.

LEEGARD[27] observed in Bratsberg, Norway, between April and November, 1899, fifty-four cases of the disease. Thirteen occurred in August, September and October. All ages were affected, but the majority were children under 11. Two patients died. The disease had the typical febrile onset, the lower extremities were affected in more cases than the upper, in one case there was facial palsy and in one case the tongue was paralyzed.

CHAPIN,[28] who was called to see some cases in consultation during an epidemic in Poughkeepsie, N. Y., in July and August, 1899, gives the details of seven cases, with one death. Thirty or forty cases were observed by the physicians there during the summer. The majority of the cases went on to complete recovery, a fact which has been noticed in a number of the different epidemics and has a bearing on the prognosis. Some were left with permanent paralysis. In the case of the patient who died an autopsy was performed and a diplococcus was found by cultures of the spinal cord.

MCKENZIE[29] describes seventeen cases occurring in the small towns of Washington and Amenia during the summer and autumn of 1899. These towns lie about ten miles east of Poughkeepsie and the epidemic there coincided with the one described by Chapin. Persons of all ages were affected in this epidemic from infants of 2 to adults of 35. Of the seventeen cases three died within four days of the onset, one recovered entirely after four weeks' illness; in one case retention of urine was observed. Two of these cases presented symptoms quite similar to those of Landry's paralysis and were so described.

PAINTER[30] saw fifty-two cases of infantile paralysis between the months of June and September, 1900, in Gloucester, Mass.; thirty-eight of these cases were under his own care. They were in children between the ages of 13 months and 10 years, and presented all types of infantile paralysis. There were, however, no deaths. In a number of cases it appeared as if contagion was possible, two members of the same family being affected.

A. M. WOODS[31] witnessed an epidemic in San Francisco in May and June, 1901. The weather was damp and cool. Fifty-five cases were recorded, of which twenty-five were reported in detail. The majority of the cases occurred in infants. The onset was attended with fever and the paralysis affected the legs in many cases. There were no deaths.

WICKMAN[32] observed twenty cases in Gotteborg, Sweden, between the months of July and November, 1903. Eleven of these were under 2 years of age, five between 3 and 5 years of age, the remainder older. Three were sisters. In one instance there were two cases in the same house. One patient died. The usual history of febrile onset was observed in all the cases, and in all some slight degree of permanent paralysis was left.

A. LORENZELLI[33] saw twenty-six cases in Parma, Italy, between the months of March and September, 1903, chiefly in infants under the age of five. The disease began with fever and was not fatal in any case, but permanent paralysis was left in the majority of the cases.

BLACKHALL[34] observed six cases at Queanbergan, New South Wales, during an extensive epidemic of poliomyelitis in the months of December, 1903, and January and February, 1904, which is the hot season in New South Wales. Two of these patients were sisters, two were cousins, and one case occurred in the house next to the one in which the sisters were affected. They were all typical cases of infantile palsy. In one case there was a facial paralysis. None of the cases was fatal. Various epidemics in different places at some distance from one another were recorded by different authors.

LITCHFIELD observed twenty-five cases at Sydney. He notes that the summer was rather wetter and cooler than usual and that during the summer there was an extensive epidemic of gastrointestinal influenza. The patients affected were all under the age of 6. There was an onset with fever and general malaise with sweating in one-half of the cases. In the other cases the disease appeared to come on with some prostration, but without much fever. All the extremities were affected in one case; two legs, in ten cases; one leg, in ten cases; one arm in four cases. There were no fatal cases. Lumbar puncture was not performed in any of the cases recorded by him.

R. B. WADE observed thirty-four cases at Stanmore, near Sydney, the patients being all below the age of 7 years. In almost all of these cases there was a febrile onset with vomiting, diarrhea and severe sweating. The temperature was between 99 and 100 for two or three days, then rose on the third or fourth day to 102, with an increase of the pain and the appearance of the paralysis. Paralysis appeared from the first to the sixth day. There was retention of urine in seven of the cases. None of the cases was fatal. In some of the cases there was complete recovery in two or three weeks; in the majority, however, some permanent paralysis was left. In several cases two or three members of a family were affected. Sometimes one member would develop paralysis and the others after several days of general malaise and undue fatigue would recover without paralysis. The legs were affected much more frequently than the arm. In one case the body muscles were involved, in one case the abdominal muscles, and in one case the face. This is the second epidemic known to have occurred in Australia.

B. B. HAM[35] saw a severe epidemic in Brisbane, Queensland, from October to December, 1904. One hundred and eight cases being reported, almost all of the patients being under the age of 10. Four of the cases were fatal. The course was febrile, the paralysis was limited to the extremities, there being no facial or bulbar paralysis. Cerebrospinal meningitis was prevalent at the time. No lumbar punctures were made. This was the third Australian epidemic.

NANNESTAD[36] observed forty-one cases of the disease in Hvalen, Norway, in the summer of 1904, between June and October. The majority of the patients in these cases were

25. Jahrb. f.Kinderh., 1, III. p. 123
26. Wickman, I.: Heine Medinscher Krankheit, Berlin, 1907, p. 148.
27. Norsk. Mag. f. Lægevidensk., 1901, 377.
28. Chapin, H. D.: Arch. Pediait. 1900, 807.
29. McKenzie, D. H.: New York Med. Rec., 1902, vol. lxii, p. 528.
30. Painter, C. F.: Tr. Amer. Orthop. Assn., 1902, p. 414.
31. Woods, A. M.: Occidental Med. Times, xvii, p. 77.
32. Wickman: loc cit., p. 149.
33. Lorenzelli, A.: La Pediatria, 1904, p. 428.
34. Blackhall, P.: Australasian Med. Gaz., 1904, p. 347
35. Ham, B. B.: Australasian Med. Gaz., xxiv, p. 193.
36. Norsk. Mag. f. Lægevidensk, 1906, lxvii, 409.

infants, but some were adults. The epidemic was light, the degree of paralysis not extreme, and no patients died.

PLATON[37] observed, in the same year and in another part of Norway, a small epidemic at Aafjorden, in the month of August. There were twenty cases and of these six died. A number of these cases appeared to prove the contagiousness of the disease.

GEIRSVOLD,[38] in Norway, reported the most extensive epidemic hitherto recorded, which occurred in Norway and Sweden in the summer of 1905. Geirsvold made a careful study of this epidemic in Norway and observed 437 cases around the neighborhood of Trondhjem, between April and October; there were sixty-seven deaths. In a number of cases it appeared as if the disease were manifestly contagious, and Geirsvold was able to trace the extent of the disease by contact from one village to another and from one house to another. It is, however, to be remarked that in a general discussion about the epidemic among the Norway physicians,[39] opinions differ as to the contagiousness of the affection. Some physicians laid particular stress on the condition of the water supply in various localities and pointed out that the disease was more prevalent in damp places surrounded by swamps. In this epidemic lumbar punctures were made by Geirsvold in eleven cases. From the fluid obtained through lumbar punctures micro-organisms were found many times. These were bean-shaped diplococci or tetracocci with flat sides toward each other, often seen in chains of four to six members. This diplococcus grew well in ordinary serum, and stained with aniline dyes. A particular feature of its character was the clear dividing line between the two half-balls which lay parallel to the axis of the chain. The same microbe was found in the pharynx of a patient suffering from poliomyelitis. Cultures from this micro-organism injected subcutaneously into mice, rabbits and dogs uniformly produced paralysis of their hind legs. This micro-organism was identified by Dethloff as the same organism found by him and Looft in 1901 in two cases of poliomyelitis and as the same micro-organism described by Huebner as occurring in a case of poliomyelitis under his observation.

WICKMAN,[40] in a remarkably careful study described in detail 1,031 cases occurring between the months of May and October, 1905, in the southern part of Sweden. These cases were distributed through a large number of small villages adjacent to one another, and Wickman believes that the records, which he has investigated with great care, prove conclusively the contagious character of the infection. Many cases occurred in the same house; in many instances two or more members of the same family were affected. In one town it was evident that sixteen or eighteen cases originated from the same schoolhouse. In the majority of instances some contact could be traced between one patient and another, and even the spread from one village to another could be accounted for by the passage of individuals from one town to the next town. The period of incubation appeared to be between one and four days. The poison remained in the house, so that new tenants were very often affected by the disease after old tenants had removed. In two cases an interval of one year's duration occurred between two cases in the same house. The care with which Wickman investigated the question of contagion and the mode of extension of the disease has not been equaled in the study of any other epidemic; and from his evidence it is very hard to escape the conclusion that the disease is actually contagious or that, like scarlet fever, it can be carried through the medium of another person to other individuals. Wickman calls attention to a large number of varieties in the disease. He speaks of the abortive type, in which individuals were ill for three or four days with febrile movement, followed by a condition of considerable prostration, and then a recovery with no paralysis remaining. Such cases have been recorded in many of the other epidemics, and therefore the conclusion may be accepted that there are light cases of the disease not recognized as paralysis because true paralysis does not ensue. He also calls attention to a type in which symptoms indicate the existence of polyneuritis accompanying the poliomyelitis. There is no question that the two diseases may occur together in sporadic cases of infantile paralysis; and in the other epidemics isolated cases have been reported in which the pain, the tenderness along the muscles, the hypersensitiveness of the skin, all indicate the possibility of an involvement of the peripheral nerves. It is therefore probable that this type of the disease should be recognized. The existence of bulbar symptoms, and particularly of cranial nerve symptoms, in a number of the cases is insisted on by Wickman, but these have been observed as already stated in many of the previous epidemics. It may be mentioned that in Sweden dogs and other animals were apparently affected with this disease at the same time as children. It will be recollected that Caverly called attention to this fact in connection with the epidemic in Vermont.

Lumbar puncture was performed in a number of the cases observed by Wickman and cultures made of the spinal fluid, but no trace of the diplococci described by other authors was found, and even in the cases that came to autopsy cultures of the spinal cord failed to reveal any micro-organisms. Wickman therefore places a certain amount of doubt on the observations of Geirsvold already described.

WICKMAN[41] saw a smaller epidemic in Sweden in 1906, only fifty cases being observed. They presented the same features noticed in the larger epidemic.

LUNDGREN[42] observed an epidemic of anterior poliomyelitis at Vardo in Norway in the summer of 1905. He records 403 cases, occurring chiefly between the ages of 6 and 15, though some adults were also affected. This disease apparently was contagious, as many cases were traced where the contagion seems evident. He thinks the time of incubation is from eight to ten days. This epidemic was a very fatal one, for 10 per cent. of the patients died. Many recovered, but permanent paralysis of some type was left in 25 per cent. of the cases.

TERRIBERRY,[43] who first called attention to the extensive epidemic occurring in New York in the summer of 1907, heard of a small epidemic at Ridgway, Pa., which occurred during July, August and September, 1907; and he visited the town in order to investigate this epidemic. He found Ridgway situated in a valley in the Allegheny Mountains about sixteen miles in length. Fifty cases developed in this little valley, the first case appearing at Elk Creek, where twelve cases were observed. Two weeks later cases appeared at Ridgway, nine miles below Elk Creek, and in that town thirty cases eventually occurred. One week after the case appeared in Ridgway, cases developed at Portland Mills, nine miles below Ridgway, and there eight cases in all developed. It was evident, therefore, that the disease extended down this valley in a definite direction, and that the incubation was in some cases one week, in others two.

Of the fifty patients four died. The patients were all children and in every instance two or three members of the same family were attacked by the disease. He mentions that in three cases bulbar symptoms developed.[44]

GRIFFIN[45] reports an epidemic occurring in Oceana County, Michigan, in the summer of 1907. There were twenty cases, chiefly in infants; the limbs were paralyzed in all cases. In one case the face was involved.

S. M. FREE[46] reported an epidemic observed at Dubois, Pa., in the summer of 1907. Over one hundred cases were observed in the Allegheny Mountains about Dubois. There were only a few deaths. The disease presented some meningeal symptoms and much pain and the paralysis involved the legs, chiefly. Pigs and chickens also were affected.

37. Tidssk. f. d. norsk. Lægefor., 1905, 601.
38. Norsk. Mag. f. Lægevidensk., 1905, 1280; Jahrb. f. Kinderh., 1906, lxiv, 255.
39. Tidsskr. f. d. norsk. Lægefor., 1906, 109.
40. Wickman: loc. cit., p. 150.
41. Wickman: loc. cit., 262.
42. Lundgren, H.: Hygeia, 1906, p. 1089.
43. Long Island Med. Jour., December, 1907.
44. Several authors in collecting the accounts of epidemics have included in their lists references to Brieglev, Inaugural Dissertation, Jena, 1890. The cases reported by Brieglev, however, were single cases developing in places far apart and could by no means be regarded as an epidemic. One author has mentioned Cervesato as having reported an epidemic in Padua in 1897. The article of Cervesato, Corriere de Milano, 1897, viii, No. 1, is an analysis of twenty-six cases of the disease, and calls attention to pain as the initial symptom in poliomyelitis, but is in no sense a record of an epidemic.
45. Griffin: Jour. Mich. State Med. Soc., February, 1908, p. 142.
46. Free, S. M.: Jour. Nerv. and Ment. Dis., April, 1908, p. 259

PROGNOSIS.

Some interesting facts in regard to prognosis have been elicited in connection with these recent epidemics. Ordinarily the mortality of anterior poliomyelitis in sporadic cases is very low, but it will be remembered that in the epidemic types the mortality has varied from 6 to 10 per cent., which makes the disease an alarming one. It has been noticed that in the fatal cases death occurred as a rule between the fourth and tenth days, the majority of fatal cases terminating on the sixth day from the extension of the paralysis to the respiratory muscles. High fever was not often noted and there was no evidence, as a rule, of heart failure, but the paralysis extended upward, involving the respiratory muscles of the throat, and patients died of respiratory palsy. The prognosis, therefore, is always serious while the disease is advancing or while the paralysis is extending, especially as it extends upward. If a child survives the eighth or tenth day, prognosis for life is favorable.

On the other hand, epidemics have demonstrated the fact that in 25 per cent. of the cases there is complete recovery. Such complete recoveries are not often observed in the sporadic cases where, as a rule, a few muscles remain partially paralyzed for the rest of the child's life.

There remain, however, a large number of cases in which, as in the sporadic types, a permanent paralysis of some kind is left.

TREATMENT.

During the early stage of the disease at the onset cupping of the back by dry cups applied for a short time only but repeated two or three times a day may relieve the congestion that is present. Ice-bags applied to the spine may have the same effect, and sponging of the body with cool water or with water and alcohol may keep down the fever to a certain extent. As a rule, children in this stage are in great pain and require some sedative. Acetanilid, antipyrin or phenacetin in appropriate doses for the age may be given. It is not unwise to use Dover's powders in connection with the coal-tar preparations. The children should be kept very quiet, as their limbs are exceedingly tender. A brisk purgative should be given, and the nutriment during the first two or three days should be chiefly milk. Dr. Cushing, of Baltimore, has recently proved that the administration of urotropin results in the presence of formaldehyd in the cerebrospinal fluid as demonstrated in his cases of cerebral surgery. This fact, which I can confirm, may be utilized in the treatment of nervous diseases where an infection is suspected, and hence the use of five grains of urotropin every four hours to a child of 8 years and smaller doses for infants may be tried during the onset of the disease or until fever subsides. Salicylate of soda has been given also in the early stage by some observers with apparently good effect. I prefer salicylate of strontium as less likely to irritate the stomach.

After the stage of onset is over and the pain has subsided it is wise to stop medication for two weeks and then begin the use of strychnin, which should be pushed in these cases as far as is consistent with safety. I have seen marked improvement under the use of one-fortieth of a grain of strychnin three times a day to a child of 8; a rather high dosage, to be reached only by progressive small increase over the initial dose. The condition of the muscles can certainly be markedly improved by manipulation, by massage, by rubbing the limbs with oil or cocoa butter, or allowing the child to play daily or twice a day in a warm bath for half an hour or more, or by applications of galvanism, both constant and interrupted. It is especially important from the very beginning of the case to prevent the development of deformities, which, in the majority of instances, are simply due to the action of gravitation on the limb whose ligaments are relaxed and whose muscles no longer act on the joints as ligaments. Proper position should, therefore, be insured by carefully adjusted braces when the child is out of bed and by properly adjusted pillows and little sand-bags to hold the feet in position when the child is in bed. The numerous severe deformities which subsequently require section of the tendons, if neglected, can always be prevented by properly adjusted orthopedic apparatus, and it is never wise to delay the application of such apparatus until the deformity has been produced. The orthopedic treatment of these cases is more important than any other.

5 West Fifty-fourth Street.

DISCUSSION.

DR. WHARTON SINKLER, Philadelphia: The epidemic of poliomyelitis in New York last year was the largest on record. No doubt a great many unrecorded epidemics have occurred. A few years ago a child suffering from poliomyelitis was brought to me from a small town in North Carolina. The parents told me that several other cases had occurred at about the same time as their child's case. There are a number of points of dissimilarity between the symptoms in the epidemic form and the sporadic form of poliomyelitis. The mortality is much greater in the epidemic form. I have seen only one case of complete recovery. The child was treated with salicylate of sodium. I have always felt that the salicylate of soda is a remedy indicated in the treatment of poliomyelitis in the early stages. In the epidemic form there is a more diffused and general involvement of the whole nervous system, involving the meninges to a great extent, which does not exist in the sporadic form. The seasonal relation is the same. A large majority of sporadic cases occur in the hot months of summer, and the same has been the case with every epidemic recorded. I saw recently a child who had had apparently two separate attacks. The right leg was first involved and the paralysis receded; fairly good recovery took place. At the end of three weeks the left leg was involved, and when the child was brought to me there was flaccid paralysis of the left leg.

DR. CHARLES K. MILLS, Philadelphia: While the disease has not prevailed in Philadelphia and vicinity as it has prevailed in New York, during the last two or more years the number of cases has increased. The disease in our own neighborhood has not received the attention that it should. One general practitioner in Philadelphia had about twenty cases. I saw two or three of these, one of most severe type and yet not fatal, in which the child was paralyzed literally from the neck down, and barely succeeded in breathing and maintaining cardiac action. At the neurologic service at the University of Pennsylvania we have had many cases brought not only from the city but from a distance, from Clearfield county, for instance, where the disease seemed to be endemic.

The probability of the occurrence of a true neuritis in these cases of poliomyelitis is worth remarking. Dr. Starr has referred to the frequency with which pain has been present. In cerebrospinal meningitis I indicated a number of years ago that multiple or diffuse neuritis occurs as part of the disease. On the edge of the epidemic, in the early months of it, I saw two cases of multiple neuritis in children, one about 13 or 14 years old, and the other younger. I have seen a few patients who have completely recovered, and several who have nearly recovered. No cases in my own experience have been fatal, but in several the disease has been of an extremely severe type. I believe in the occurrence of Strümpel's poliomyelitis or encephalitis, and I have seen cases.

F. X. DERCUM, Philadelphia: I found a diplococcus in a

sporadic case of poliomyelitis some years ago. However, I did not regard the finding as of value. I am convinced that the pain in the epidemic cases which we have had in Philadelphia is much more marked than in sporadic cases. In sporadic cases the pain has, in my experience, been a negligible factor, but during the present epidemic the pain in some cases was atrocious, and was not influenced by salicylate of sodium. It would be interesting if the final conclusion were to be that there are two different affections, similar only in a few points in regard to their symptomatology. Certainly the suggestion that the cases of the present epidemic were contagious would be in keeping with such a view. I have been impressed in the cases that I have seen by the relatively high degree of recovery; the attack had in some cases swept through the nervous system like a cyclone and yet left mere traces behind.

DR. FRANK R. FRY, St. Louis: I believe that in this epidemic form older patients are often attacked, and for that reason some cases are overlooked. Three years ago we had an epidemic in St. Louis, not nearly so extensive as many in the east, of course, yet enough of an epidemic so that we noticed many cases. The general data only and no statistics were collected, showing plainly that there had been an epidemic, and among the cases a number of cases in young adults.

DR. L .H. METTLER, Chicago: In these forty-four various epidemics, particularly the last one, has there been a partial or complete repetition from year to year of other cases in the same localities? I think Oppenheim has made the statement that almost all his cases of this disease came from one particular locality, not far from Berlin; thus leaving one with the impression that there is an endemic character, at least in some respects, to the trouble. This might account for the various outbreaks at different times and of varying degrees.

DR. FRANK P. NORBURY, Jacksonville, Ill.: In central Illinois, three years ago, during the time that poliomyelitis was prevalent in St. Louis, I saw about eight cases. Two occurred in young adults, one a college student, a young man about 18, another in a young farmer of about 25. Both were cases of anterior poliomyelitis.

DR. WILLIAM G. SPILLER, Philadelphia: Meningitis has been found as a complication in cases of poliomyelitis, and the pain may be caused by the meningitis. The lesions are not always confined to the gray matter in poliomyelitis. I have seen the typical findings in the lumbar region of a spinal cord, whereas sections from the thoracic region of the same cord showed involvement of the white matter. Strümpell's form of polioencephalitis exists. I have examined the specimens from three cases in which the lesions were almost confined to the gray matter in a limited area of the cortex. One was from a case of Dr. Mills, another from a case of Dr. Moleen, and the third from a case of my own. In the late stages of poliomyelitis nerve transplantation may be of service. Often a nerve is cut and inserted into another nerve without transverse division of the second nerve. The results have not always been favorable. The best results may be expected from end-to-end anastomosis. Bikeles cut certain nerves in one leg of a dog and inserted them in another nerve, without cutting the nerve across into which he made the insertion. In another leg he cut the nerves entirely across and anastomosed the central end of one nerve with the peripheral end of another nerve. He allowed the dog to live 294 days after one operation, and 210 days after the other, and then cut the nerves below the point of operation. When a nerve is cut reaction at a distance occurs in its nerve cells, and Bikeles showed that no alteration of the cells of the nerve into which the insertion had been made occurred, whereas alteration followed on the side of the end to end anastomosis; indicating that on this side only had physiologic union occurred after the previous operation. From this experiment we may conclude that in operations on nerves in cases of poliomyelitis our results will be better if we partially or completely divide the healthy nerve before uniting it with the diseased nerve.

DR. CHARLES R. BALL, St. Paul: In two cases of poliomyelitis in adults, which I reported several years ago, one a boy of 16 and the other a man of 40, I had the opportunity of seeing those cases during the acute attack. The fever never went high—not over 101—and then perhaps only for a short time—a portion of a day, and yet the paralysis following was quite severe. Is there any relation between the severity of the acute symptoms and the following paralysis? Has Dr. Starr observed whether the residual paralysis left in adults having acute poliomyelitis is apt to be greater than in children?

DR. A. R. ALLEN, Philadelphia: We have had at the disposal of the University of Pennsylvania at least two cases of typical anterior poliomyelitis which showed, for a number of weeks after the onset of the symptoms, distinct nerve pain on pressure along the nerves. In one case the tibialis anticus was extremely tender to pressure, and we thought that it was a case of neuritis in connection with anterior poliomyelitis change.

DR. HENRY W. FRAUENTHAL, New York: In the last epidemic treated in the last month, the patients over 10 years of age have recovered early as compared with those who are older. I recall the case of a patient 17 years of age, treated for deformities and joint diseases, in the hospital (which takes in no patient under 14 years of age), who has had two hours' treatment daily with electricity and massage. The boy has made comparatively little progress toward recovery compared with improvement made by patients treated for a short time three days in the week. In my experience patients over five years old do not recover as quickly or as completely as children under that age.

DR. D. I. WOLFSTEIN, Cincinnati: Dr. Buzzard in a recent article says that many cases of so-called infantile paralysis occur in early adult life, and even in later years. It would be interesting to know whether or not any of the cases diagnosed as infantile paralysis might possibly have been acute cases of this toxic form of neuritis, and whether the differential point that Dr. Buzzard makes in connection with that, the early involvement of the facial muscles, was noted.

DR. MORTON PRINCE, Boston: I noticed in Dr. Collin's collection of cases in the same epidemic that the third and sixth nerves in these cases were found to be paralyzed. His patients were all below 10 or 11 years of age.

DR. H. OSTRANDER, Kalamazoo, Mich.: There is an epidemic of this kind in western Michigan, including twenty-five cases, some of which I saw. In a number of families where children had the disease, there were adult cases presenting acute symptoms of the onset of the disease; they had the rise of temperature, the terrific pain and bowel trouble, but there was no paralysis following.

DR. M. ALLEN STARR: In answer to Dr. Sinkler's question about recurrence, there have been cases reported in other epidemics, one by Gieswold, in Norway, of the patient having an attack in one leg with apparent partial recovery, and a second attack nine weeks later in the opposite leg. Wickman records two cases of recurrence at an interval, in one case of eight weeks, and in the other three months. I have never seen a case of recurrence, but I saw a little boy who was attacked last summer with anterior poliomyelitis in the right arm; and I found he had pseudohypertrophic paralysis in both legs and back. The two diseases had naturally been confounded, but it was easy to show that the pseudohypertrophic paralysis had been of gradual onset for the past three years, while the poliomyelitis had come on in the arm as an acute attack. In answer to Dr. Mills and others, the differential diagnosis between neuritis and poliomyelitis is not always an easy one. I have been unable to find on record any cases of distinct demonstration of neuritis associated with poliomyelitis, although the pathologists who have written on this subject have detailed cases of degeneration in the anterior nerve roots and in the anterior nerves passing downward to the muscle. Anything like the acute congestive condition with exudation in the nerve sheath has not been observed, so far as my knowledge goes, and Wickman's pathologic observations and those of Harbitz and Scheel in the Norway epidemic, show a particularly careful record of the condition of the nerves. Pathologically we lack the demonstration of the coincidence of multiple neuritis with anterior poliomyelitis. That multiple neuritis does occur and that it does occur in a toxic type in children I

freely admit, because I have seen cases, but I think that they are extremely rare. That multiple neuritis is rare in connection with anterior poliomyelitis is proved by the fact that we do not find conditions of anesthesia of a permanent type or even of a glove-stocking temporary type, in cases of anterior poliomyelitis, while that is characteristic of multiple neuritis. I am unwilling to admit that the mere existence of pain is a proof of multiple neuritis in connection with anterior poliomyelitis.

In answer to Dr. Fry the vast majority of patients in New York ranged in age from 6 to 7 months up to 8 years, but cases occurred in patients aged 32. I witnessed and investigated carefully the epidemic of Rutland, Vt.—144 cases—and there saw patients as old as 54. No age is exempt.

It seems to me that the proper treatment of the chronic state of the disease is clearly orthopedic. The transplantation of tendons has been a great deal more satisfactory to me than transplantation of nerves. I have had nerves transplanted, but not with the good results that I have had in splitting the muscles and tendons, and so making practically new muscles for the children. If you have a single muscle left below the knee you can repair the paralysis of almost all muscles of the foot. There is no relation between the degree of fever and the amount of paralysis; and the residual paralysis is greater in adults than in children. There has been no examination of the excreta for the detection of the particular toxin. The recovery is slower and much less in degree in adults than in children. I have two cases in which the third nerve was paralyzed, in addition to several cases in which the sixth nerve was paralyzed. The existence of abortive cases was not recognized until Wickman made his investigations. It is important to recognize the existence of cases of extreme fatigue and malaise in children, with unwillingness to move, which do not amount to anything in the way of a true paralysis afterward.

I consider electricity applied to the central nervous system as utterly useless in every particular, and that a lesion of the brain or of the spinal cord can not be affected in any way by the passage of a galvanic, faradic or other current through the central nervous system. The muscles can be toned up very well by anything that will cause them to contract; but as for increasing the nutrition of the spinal cord or replacing one little nerve cell by the electric current, I do not believe anybody ever did it.

THE OPTIC NERVE CHANGES IN MULTIPLE SCLEROSIS.

WITH REMARKS ON THE CAUSATION OF NON-TOXIC RETROBULBAR NEURITIS IN GENERAL.*

WARD A. HOLDEN, M.D.
NEW YORK.

It seems scarcely necessary to dwell on the established facts of the optic nerve changes in multiple sclerosis. These are familiar through the statistical studies of Uhthoff[1] and those who have followed him. We know that ophthalmoscopic changes in the optic discs are found in about half the cases of this disease, that visual disturbances are frequently early symptoms—sometimes preceding any other symptoms by months or years—that the visual disturbances are often of sudden onset, and, if slight, frequently remain long unprogressive, and if excessive usually improve, the course of the optic nerve changes thus differing radically from the slow, steadily progressive atrophy of tabes.

I shall take it for granted, also, that it is the custom to examine the fundus and determine the fields of vision in every case in which multiple sclerosis is suspected. Optic nerve changes, if present, will help to confirm the diagnosis. Thus ophthalmoscopic changes in the discs will exclude hysteria; and since optic nerve changes are rare in early paresis, if not complicated by tabes (I found the discs normal in seventy consecutive cases of early uncomplicated paresis), one can exclude this disease, into which many cases, diagnosed as multiple sclerosis, develop after they have come into the hospitals for the insane.

It will be more to the purpose to base my remarks on a number of illustrative cases, considering them under several headings.

A. THE PATHOLOGIC CHANGES IN THE OPTIC NERVES IN MULTIPLE SCLEROSIS.

The cause of disseminated plaques of sclerosis in the central nervous system is still unknown. It is agreed that the histologic changes consist of localized vascular disturbances, with exudation of round cells, and of degeneration of the medullary sheaths of the nerve fibers, while the axis cylinders and ganglion cells are long preserved. Hypertrophy of the neuroglia usually fills the spaces left by the disappearance of the medullary sheaths.

The degenerative changes may remain limited to the plaque or medullary degeneration may extend upward or downward. Restoration of the degenerated medullary sheaths often takes place and the fibers then resume their function.

Typical pathologic changes in the optic nerves and chiasma were found in the following case:

CASE 1.—A woman, aged 27, died at the Montefiore Home of infection after cystitis and pyonephritis, which were manifestations of multiple sclerosis.

History.—Seven years before her death she fell and dislocated her right hip. A year later she noticed weakness, numbness, and coldness of her right leg, which lasted for two months. Four months later the same symptoms were experienced in her left leg. These cleared up in two months.

Eye Symptoms.—About this time there was a sudden diminution of vision and it was said that she was "blind in one eye and color blind in the other." Vision improved, and she was comparatively well for a year and a half. Four years before her death her left leg again became weak and numb. Her gait was staggering. There was disturbance of micturition. There were diplopia, nystagmus, poor vision, slow and monotonous speech, deafness, and poor memory for recent events. Three years befor her death temporal pallor of the discs was noted.

Pathology.—At the Pathologic Institute of the New York State Hospitals, serial vertical sections were made under the direction of Dr. Dunlap, through the optic nerves, chiasma, and tracts, and these were stained with Wolter's medullary stain and with hematoxylin-eosin. In a section through the optic nerves at the point of their emergence from the chiasma, there is seen (Fig. 1) a diffuse degeneration, particularly in the central or papillo-macular bundles of fibers in each nerve, which accounts for the temporal pallor of the optic discs seen in life. This degeneration consists of an absence of a certain number of medullary sheaths in each affected bundle. The degeneration can be followed down the optic nerves toward the eyeballs. Further back in the chiasma there is a sharply outlined oval plaque, in which the medullary sheaths are almost entirely wanting. The affected area appears to be rarified rather than sclerosed, and there is no increase in the number of neuroglia nuclei, and neuroglia fibers form a loosely meshed network (Fig. 2). The degenerations in this case are old, and no inflammatory conditions are found, as was to be expected.

Such being the characteristic pathologic changes in the optic nerves in this disease, it is obvious that they may give rise to a variety of types of visual disturbance.

*Read in the Joint Meeting of the Section on Nervous and Mental Diseases and the Section on Ophthalmology of the American Medical Association, at the Fifty-ninth Annual Session, at Chicago, June, 1908.

1. Graefe Saemisch, xi, p. 337.

B. THE TYPES OF FIELDS OF VISION, AND THE CORRESPONDING OPHTHALMOSCOPIC CHANGES IN THE OPTIC DISCS.

The visual disturbances fall chiefly into three groups: (1) Concentric contraction of the field of vision; (2) central scotoma with normal peripheral limits of the field, and (3) a combination of concentric contraction of the field and central scotoma. These types of fields are associated, to a certain extent, with characteristic ophthalmoscopic appearances of degeneration in the optic discs. Discrepancies may occur, however, since in rare instances there may be some degree of papillitis, and, again, a lesion far back in the nerve may cause visual disturbances long before a descending degeneration leads to pallor of the disc, while conversely the clearing up of a lesion in the nerve may lead to improvement in vision while the disc, after once becoming pale, remains so.

Normally, the temporal portion of the disc is paler than the nasal portion, and while in diffuse degenerations of the nerve, with concentric contraction of the field of vision the entire disc may become pathologically pale, this pallor is always more pronounced in the temporal portion of the disc. The axial or papillo-macular bundle of the optic nerve which is distributed to the region of the macula lutea, the center of distinct vision, lies in the center of the optic nerve as it emerges from the chiasma, but when it has descended to the optic disc it occupies the inferior temporal quadrant of the disc. When the papillo-macular bundle alone is involved, in cases with pure central scotoma, the inferior temporal quadrant of the optic disc alone shows a pathologic pallor.

Concentric contraction of the field of vision is well shown in the following case:

CASE 2.—A man, aged 21, four and a half years ago noticed vertigo and a staggering gait. Six months later tremor of the head and hands came on, and there was difficulty in speaking. Now there is marked nystagmus and great difficulty in walking.

Examination.—Three years ago his vision failed during a period of four months and has since been stationary. O. D. = 20/50; O. S. = 20/30. There is concentric contraction of the fields. On the right side, the contracted limits of the field for a 1 cm. square of white on a black ground are shown in Figure 3 by the heavy unbroken line; the contracted limits of the field for a 1 cm. red square on a gray ground are shown by the broken line. The red square can be seen as far away as five feet, and is seen more clearly at the point of fixation than to one side. The disc presents a marked pallor in its entire extent, except in a narrow crescentic zone at its nasal margin. The outlines of the disc are well defined. The arteries are small, the veins are of normal caliber (Figs. 3 and 4).

The next case exhibits a central scotoma.

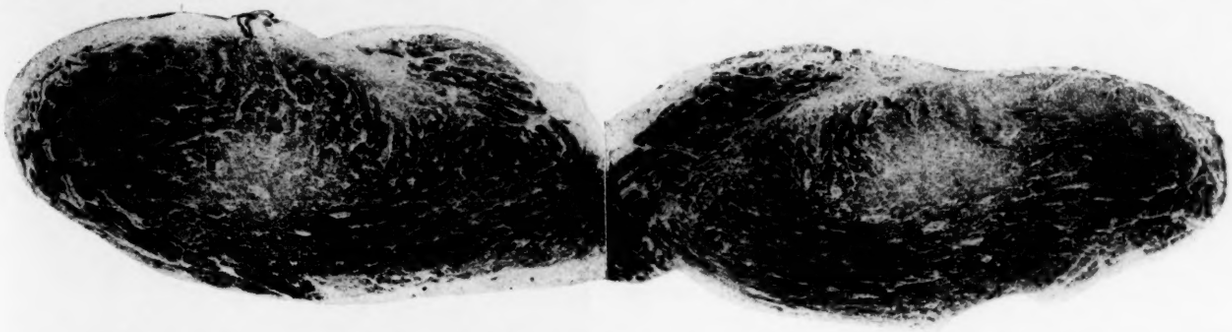


Fig. 1.—Optic nerves in cross section where they emerge from the chiasma. Wolter's medullary stain shows pale areas of degeneration, chiefly in the central bundles of each nerve.

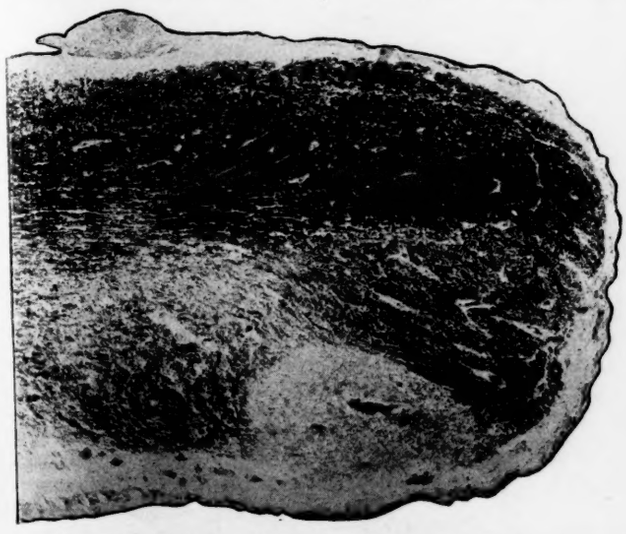


Fig. 2.—A peripheral, sharply-outlined, oval, sclerotic plaque in the chiasma, with a large vessel in its center (below and to the right). Wolter's medullary stain. The fibers which run through the plaque preserve their medullary sheaths in sections anterior to it, but posteriorly a certain degree of ascending degeneration in the optic tract can be made out.

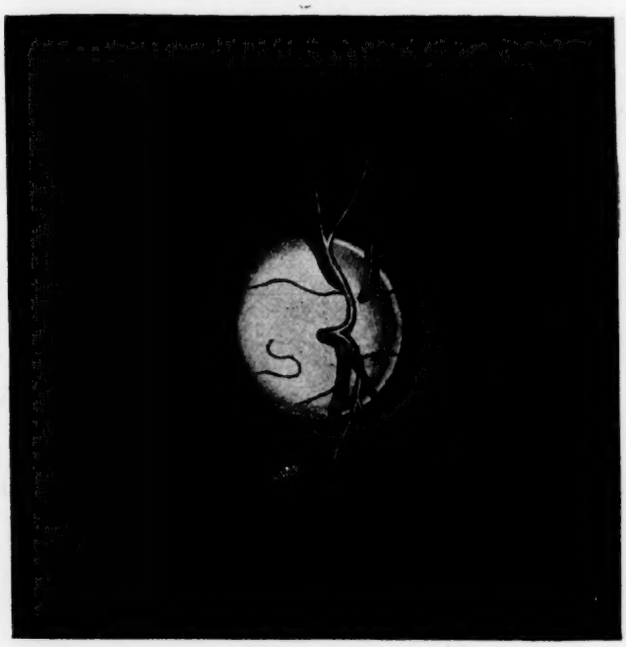


Fig. 3.—Case 2. Concentric contraction of the field for white and red, with well-marked pallor of almost the entire disc.

CASE 3.—A man, aged 29, noticed five years ago paresthesia of the feet, then weakness and stiffness of the legs, increasing for a year, when he became unable to walk. Two years ago he lost control of his arms. For a time there was diplopia. Now there is constant nystagmus and difficulty in speaking.

Examination.—Five years ago his vision failed gradually for six months, and has since remained stationary. O. D. = 20/50; O. S. = 20/70. For the left eye, the limits of the fields for white, for a 3 mm. black dot and for red are normal, but the red square can not be recognized at a greater distance than eighteen inches, and it is seen at this distance obscurely in a central field 15 degrees in diameter, and more clearly on every side (Figs. 5 and 6).

There is pallor of the left optic disc limited to the inferior temporal quadrant. The outline of the disc is well-defined and the arteries and veins are of normal caliber.

The next case illustrates a combination of concentric contraction of the field and central scotoma.

CASE 4.—A woman, aged 27, met with an accident two years and a half ago. Eight months later she had pains in the head, neck, chest, hips and fingers. Her feet felt numb. Now there is constant nystagmus and great difficulty in walking. She has never had diplopia.

Examination.—The vision of the left eye became affected

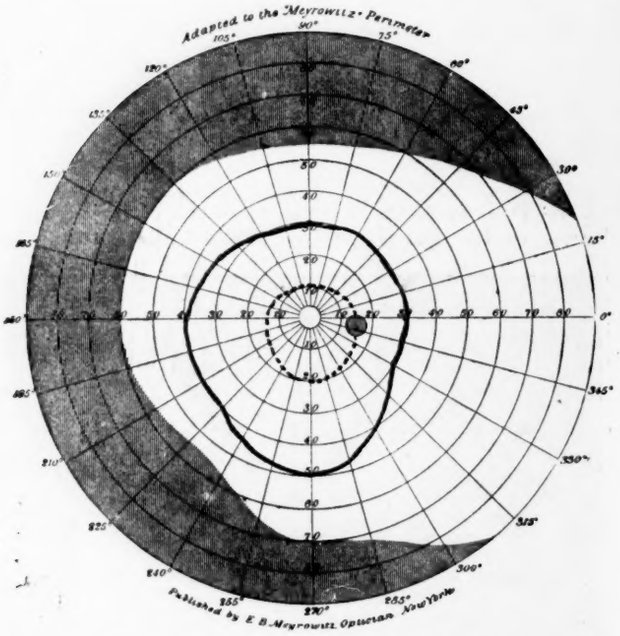


Fig. 4.—Case 2. Diagram of visual field, showing concentric contraction.

soon after the accident and while there have been fluctuations in the sight, no great change has taken place. O. D. = 20/30; O. S. = 20/100. The right optic disc and fields are normal. On the left side there is concentric contraction of the field for white (Fig. 8). In the central portion of the field red is not recognized in the area indicated in the chart by the dots. The disc is slightly pale in its entire extent and the inferior temporal quadrant is still paler. The outline of the disc is blurred and the veins are dilated.

These three hospital cases examined recently give one a fair idea of the changes in the visual fields and in the optic discs likely to be found in multiple sclerosis.

C. RETROBULBAR NEURITIS THAT IS PROBABLY AN EARLY SYMPTOM OF MULTIPLE SCLEROSIS.

In the cases described above the optic nerve changes clearly were due to multiple sclerosis. But when visual disturbances, suggestive of multiple sclerosis, are not accompanied by other symptoms of the disease there may be much doubt as to their nature. Furthermore, visual disturbances may precede all other symptoms of this disease for years, or, possibly, since this is sometimes a monosymptomatic disease, the optic nerve disturbances may be the only symptoms.

A case of retrobulbar neuritis suggestive of multiple sclerosis, but unaccompanied by any other pronounced symptoms of the disease, is the following:

CASE 5.—A year and a half ago, I saw a man of 23, who said that the sight of his left eye had become blurred nine

Fig. 5.—Case 3. - A relative central scotoma for red; with pallor of the inferior temporal quadrant of the optic disc, in which lies the papillo-macular bundle.

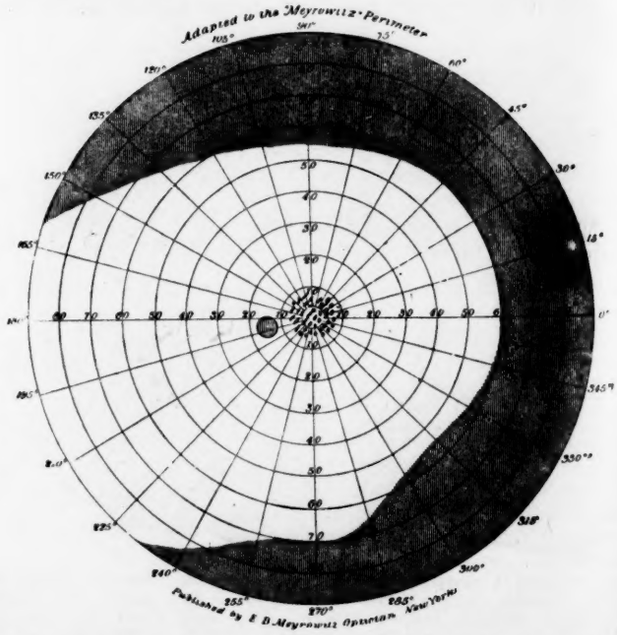


Fig. 6.—Case 3. Visual field. The dotted area represents the relative central scotoma for red.

months before, and that the sight of the right eye had become blurred three months later.

Examination.—His vision failed rapidly, at first, then remained stationary, and in the few weeks before I saw him, he had noticed some improvement in the vision of the eye first affected. He could count fingers with either eye at a distance of four feet with excentric fixation. The limits of the

field for white for each eye were normal. Red could be seen faintly in the periphery of the field of the right eye, but not at all in the field of the left eye. There was an absolute, circular, central scotoma for white, about 25 degrees in diameter, in the field of each eye.

The right optic disc was slightly pale in its temporal half. In the left eye, in which the visual disturbance was of longer duration, there was a slight general pallor of the entire optic disc, more marked in its temporal half. The outlines of the discs were well-defined, and the veins were slightly dilated. His vision was better in reduced illumination.

Other Symptoms.—An only brother, aged 30, had never had any visual disturbance, hence family retrobulbar neuritis could be excluded. The patient was not under weight, his general health was good, and he complained of no nervous symptoms. Tobacco, alcohol, lead, diabetes, and syphilis could be excluded as causative factors. There were no nasal symptoms. There was a slight tremor of the face and also of the hands, but the latter was not pronounced enough to affect his writing. There was at times a slight nystagmus in extreme lateral directions of the gaze. The knee-jerks were active, but not decidedly exaggerated.

Course of Disease.—Examinations by a number of physicians revealed no cause for the retrobulbar neuritis, and various

Fig. 7.—Case 4. Concentric contraction of the field for white and for red and also an absolute central scotoma for red. Slight signs of inflammation in the disc and a slight general pallor with more pronounced pallor in the inferior temporal quadrant.

forms of treatment having been of no avail, it was decided to abandon treatment altogether, and the patient went abroad to travel. A few months later, his sight improved so that he was able to read, and he then resumed his occupation. No other symptoms of multiple sclerosis have appeared up to the present time, nearly two and a half years since his vision became impaired.

In this case the optic nerve disturbances, both in character and in course, are characteristic of multiple sclerosis, but up to this time, two and a half years after their onset, no corroborating symptoms have developed. Nevertheless, this case seems to me to be one of multiple sclerosis.

D. THE CAUSES OF RETROBULBAR NEURITIS OTHER THAN MULTIPLE SCLEROSIS.

Frank, in Oppenheim's clinic, found that optic-nerve symptoms appeared before other symptoms in 15 per cent. of the cases of multiple sclerosis. Bruns and Stölting found this to be the case in 30 per cent. Marx[2] recently sent for all the patients with retrobulbar neuritis and tobacco-alcohol amblyopia who had been seen in recent years in the Strasburg University eye clinic. Cases of toxic retrobulbar neuritis caused by tobacco, alcohol, lead and the toxemias of pregnancy are diagnosed easily and are placed by themselves. Cases due to syphilis, diabetes and trauma also are diagnosed readily. Among sixteen patients with non-toxic retrobulbar neuritis, whom Marx examined, each at an interval of from three months to seven years after the first observation, six patients were found undoubtedly to have multiple sclerosis, or 38 per cent. In the remaining ten cases he found the most important etiologic factor to be exposure to cold and wet, followed by coryza.

What was the probable cause of the retrobulbar neuritis in these ten cases? It has long been recognized that since the wall of the sphenoidal sinus is, in part, also the wall of the optic foramen, sphenoidal suppuration may lead to blindness. In this country, more than twelve years ago, Dr. C. R. Holmes operated successfully

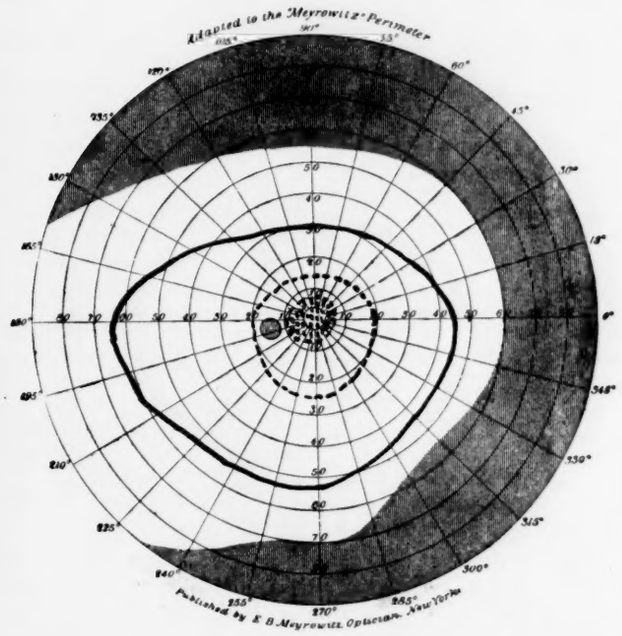


Fig. 8.—Case 4. Concentric contraction of field for white is shown by the heavy unbroken line, and of the field for red, by the broken line. The central dotted area represents the absolute central scotoma for red.

in such a case by opening the ethmoidal and the sphenoidal sinuses and restored the vision of a blind eye. He stated[3] that sphenoidal disease might be the cause in very many instances of obscure cases of retrobulbar neuritis.

Onodi,[4] working for ten years on the relations between the optic nerve and the accessory cavities of the nose, long ago found that frequently the posterior ethmoidal cells are separated from the optic nerve in the optic foramen by the thinnest possible bony wall, and, furthermore, that the distribution of the blood vessels favors an extension of inflammations from the mucous membrane of the ethmoidal cells to the periosteum of the optic foramen. Thus ethmoidal disease may give rise

2. Beitr. z. Progn. d. Neur. retrobulbaris u. d. Intoxications-amblyopia, Arch. f. Augenh., 1907, lix, 1, p. 28.
3. Arch. Ophth., 1896.
4. Der Sehnerv und die Nebenhöhlen der Nase, Hölder, Vienna and Leipsic, 1907.

to an affection of the canalicular portion of the optic nerve, which manifests itself in a central scotoma or perhaps in complete blindness. At first there may be no changes in the disc, or merely inflammatory signs, but later pallor from degeneration of the nerve fibers appears.

Dr. W. C. Posey, two years ago, described vascular changes in the optic disc and surrounding retina in cases of ethmoiditis. And Dr. Arnold Knapp has recently reported a case of retrobulbar neuritis with central scotoma in which, by removing a portion of the middle turbinate and draining the ethmoidal cells, the vision was restored to normal. He believes that the common cases of retrobulbar neuritis following influenza are of ethmoidal origin. An illustrative case is the following:

CASE 6.—Three months ago I saw a woman, aged 30, who, two years before, had noticed a sudden diminution of vision in the left eye, which passed off in the course of a few weeks. When I first saw her there had been a rather sudden complete loss of sight in the left eye two weeks before, and this eye had no perception of light. The pupillary reaction to light also was lost. Medicinal treatment had not improved her condition. The optic disc was swollen, and the retinal veins were dilated and tortuous.

Examination and Treatment.—In the right eye, acuteness of vision and the field of vision were normal, hence the lesion on the left side lay anterior to the chiasma. Since nothing could be discovered in the orbit to account for the complete blindness, a diagnosis of disturbance in the canalicular portion of the nerve was made. Examination of the nose revealed an abnormal middle turbinate on each side. A portion of the middle turbinate on the left side was removed by a rhinologist, so that drainage of the ethmoidal cells was established, and vision in the periphery of the field at once returned. The large central scotoma gradually became narrower, and three weeks after the operation vision in the left eye was 20/20, with a normal field.

Course of Disease.—A few days later vision in the right eye sank to 20/70, with a central scotoma and normal peripheral limits of the fields. The middle turbinate on this side showed more evidence of disease than the other had shown, and removal of a portion of it was followed by restoration of normal vision in the right eye in a few days.

As stated above, Marx reported sixteen cases of non-toxic retrobulbar neuritis, and six of these patients were found later to have multiple sclerosis. Most of the remaining patients gave each a history of coryza preceding the diminution of vision. Is one not justified, therefore, in assuming that some of these ten cases of retrobulbar neuritis were of ethmoidal or sphenoidal origin?

Non-toxic retrobulbar neuritis has long been a mysterious disease, but it would seem now that a little more study might rob it of much of its mystery and teach us that although syphilis, diabetes, neoplasms, injuries and the like may be causes, non-toxic retrobulbar optic neuritis, in the majority of cases, if it does not mean disease of the accessory sinuses of the nose, means multiple sclerosis.

RECAPITULATION.

Disturbances of vision are found in about half of the cases of multiple sclerosis. Usually the dimness of vision is noticed early in the course of the disease, and it may come on long before any other symptoms have attracted attention.

More than half of the patients with multiple sclerosis who complain of failing sight have central scotoma in the field of vision, and the ophthalmologic diagnosis of their condition is retrobulbar neuritis. Toxic cases of retrobulbar neuritis, due to poisoning with tobacco, alcohol, lead, and the toxins arising in pregnancy are readily recognized and diagnosed as toxic. The causation of non-toxic retrobulbar neuritis, however, has often been obscure. We have learned recently that many of these cases are due to sphenoidal and particularly to ethmoidal disease, which involves the optic nerve in the optic foramen.

In my opinion, we shall soon come to the belief that a non-toxic retrobulbar neuritis, if not due to a sinusitis or directly to syphilis, diabetes, a neoplasm, or trauma is, as a rule, a manifestation of multiple sclerosis, although no other symptoms of the disease may be present.

DISCUSSION.

DR. D. R. BROWER, Chicago: There is probably no disease of the nervous system in which mistakes are so frequently made as in the multiple scleroses. A few years ago there was in the Presbyterian Hospital of this city, a woman at the menopause. She had a coincidence of cerebral and spinal symptoms. She had intention tremor, disturbance of speech, spasticity of lower extremities, slight ataxia, exaggerated reflexes and disturbance of bladder. The physician in charge of the case sent the patient to her home in Iowa with the diagnosis of multiple sclerosis and the usual prognosis. The so-called Christian Science was becoming active in her town. She became interested in it and in a few days was cured. From that day she has been a most ardent propagator of the cult—a case of hysteria mistaken for multiple sclerosis. I do not think that sufficent attention was paid to the eye in this case. The concentric limitation of the field of vision in hysteria is quite different from the central scotomata or irregular contractions of the field of vision in multiple sclerosis. I believe that, if an ophthalmologist had been called in consultation, the error in diagnosis might not have been made. Nystagmus is a valuable eye symptom, especially that form developed by forced movements. Disturbances in the innervation of the muscles of the eye are also valuable aids to diagnosis. The various eye symptoms may take place very early, so that the majority of cases demand the combined action of the two specialties in the beginning to make diagnosis certain.

DR. PETER BASSOE, Chicago (exhibiting Weigert-Pal specimens of horizontal sections through the optic chiasm of a case, material from which he had received from Dr. J. D. Madison, Milwaukee): I call attention to the great extent of degeneration in the optic nerve, normal fibers being found at the periphery only. The patient died at the age of 24 and had been ill for four years with all the cardinal symptoms and marked optic atrophy.

Clinical Notes

A CASE OF MULTIPLE ARTHRITIS DEFORMANS.

ERNEST H. MUSE, M.D.
ROANOKE, VA.

The following is a rare and interesting case of multiple arthritis deformans. There are few such typical cases of this disease on record, and the marked deformity makes this case doubly interesting, as death usually claims such victims before this advanced stage has been reached.

Patient.—A mulatto boy, aged 19. He was born in Botetourt County, Virginia, in 1889; and moved to Roanoke in 1893, where he has since resided.

History.—He went to school in his early childhood, and was apparently in as good health as any boy of his age. During the twelfth and thirteenth years of his life he was delivery boy at a meat stall at the city market, and during these two years he was exposed to a great deal of bad weather. In the

fall of his thirteenth year he suffered slight pains in various parts of his body; especially in the joints of the extremities. These pains his physician pronounced of a rheumatic character. They grew worse at times, and then would subside entirely, only to return again at a later date; and on their return they were more severe than during the preceding attack. The pains gradually grew worse, and later a thick bloody serum begun to accumulate about the knees, along with a low grade of inflammation. The disease has gradually advanced until the present condition has been reached. About three years ago both of his knees contained an edematous fluid, which pained him considerably. His attending physician aspirated and drew off a quantity of bloody serum. This sufficed to relieve the pain for a short time only; the serum reaccumulating. Another physician was called and he made incisions into the joints, and inserted rubber drainage tubes. Since this the patient has never walked. Contractions of the tendons and muscles soon left him in the condition which he now presents. The knee joints do not seem to be completely ankylosed; but the impaired mobility seems to be due to the contractions of the tendons and muscles, and to the enlargements of the ends of the bones which go to make up these joints. Some two years ago vision in the left eye began to fail, and this gradually grew more marked, until about eight months ago it became totally blind.

Examination.—There is marked ptosis of the left eyelid, which droops so much that it almost covers the pupil. There is only about half normal vision in the right eye. This eye is also gradually growing worse, and will eventually, if the patient lives long enough, become totally blind. The external ocular muscles of the eyes have contracted and caused diverging strabismus. Torticollis has also developed during the progress of the disease, the contraction of the sternocleidomastoid being well-marked. There are well-marked enlargements of the articular ends of the phalangeal bones; atrophy of the muscles, and binding of the skin to the bones between these joints. There are exceptionally well-marked nodules on the left hand. The disease as a whole seems to have affected the left side more than it has the right; especially the eye, hand, knee and foot. The thumb nail on the right hand dropped off about three weeks ago. The thumb nail of the left hand is loosening. The osseous tissue of the elbows and shoulders are enlarged somewhat similar to the condition of the knees, the elbows being much larger than the shoulders. I tried to get a photograph of the naked subject, but he would not submit to it. The muscles between the hips and knees, as well as those between the knees and ankles are much atrophied; in fact they have wasted almost entirely away. The arteries and veins between the hips and ankles are very prominent, and apparently are in their normal condition. The pulsation of the arteries can be felt at almost any point between these joints. Feet: The marked enlargement of the feet is one of the most interesting features of this case. The left foot weighs 12¼ pounds. This enormous weight is principally due to the edematous condition, but the osseous enlargement adds materially. The foot has turned outward and backward to an angle of 78 degrees. The right foot is at about a right angle. Almost all the toe nails on the left foot have come off, and the others are loosening, and will eventually be exfoliated. The splotches on the left foot indicate a dry form of gangrene. The skin is broken in several places, presenting exudating ulcers. The right foot is considerably enlarged, weighing seven pounds. There are no gangrenous or ulcerated areas on this foot, the skin being intact; but there is considerable edema. The nail on the great toe of this foot has been shed, and the others are loosening.

Other Points of Interest.—There are several interesting peculiarities about this case which are well worth emphasizing. At the time of the beginning of this disease this boy was very much darker than the average negro, in fact he was almost black. The pigmentation has made some mysterious disappearance, and he is now almost white, with the exception of about half of the right foot. His hair, before the disease started, had the characteristic nappy appearance which so distinctly marks his race. Now it is straight and black, and resembles greatly the hair of the Indian. The viscera seem to be very little affected. The heart has a very rapid, quick pulsation, the rate per minute reaching 120 on first count and 115 on second. I could not locate any valvular lesions. The lungs are in good condition. The patient breathes freely while in a quiet attitude, but on exerting himself in talking over a considerable length of time he will take a long deep breath, and show other signs of fatigue. He has a good appetite, eating almost anything put on the family table, and assimilating his food as well as could be expected under such sedentary conditions. He keeps his bed most of the time, but gets up once or twice during the day and sits in a chair, but he has to have assistance in getting in and out of bed.

The functions of the liver and kidneys are well preserved,

the bowels moving regularly, without the aid of drugs. The urine is normal in quality and quantity, and is passed with ease and painlessly.

The patient has been treated by eight or ten of the best physicians of the city prior to coming under my care, which was about four months ago. There is practically nothing that can be done for him in his present condition that I know of in the way of a curative treatment. I am meeting the symptoms as they arise and relieving them as best I can. The principal treatment that he is getting at present is an occasional anodyne to relieve pain, which is principally in his left foot, and

the syrup of iodid of iron as a systemic tonic. He seems to be holding on with remarkable tenacity under this treatment, there being but very little change in his condition since I first saw him.

A BODY ELEVATOR AND SUPPORT FOR OPERATIONS ON THE ABDOMEN AND TRUNK.

GEORGE W. HAWLEY, M.D.
SEATTLE, WASH.

As operative surgery has extended its attack on one organ after another within the body, and operative procedures have become more pretentious and finished, there has arisen the necessity for exposing the various operative fields to better advantage.

To obtain exposure of any operative field it is customary and natural to raise and support different parts of the body in order that the different structures to be treated may be brought to prominent view and adjacent interfering ones induced to recede out of the way. The time-honored sandbag has long been used for this purpose, but a few substitutes have been taking its place, notably, Edebohl's air cushion, Cunningham's kidney support, and the Lilienthal body elevator attachment on the new Baldwin, Lilienthal, and Markoe operating tables.

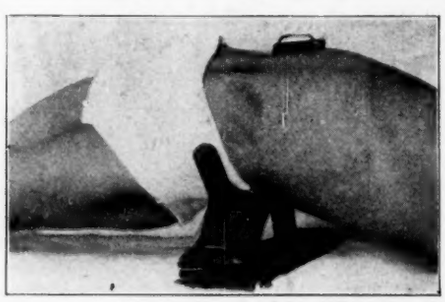


Fig. 4.—Elevation of the right side showing exposure and slant of the abdomen. In this position the intestines gravitate to the left side, and the right half of the abdomen is brought up into excellent position for the surgeon as he stands at the left of the table.

Many difficulties are often found in lifting and bracing a patient's limp body on the operating table. Sandbags and cushions frequently fail to maintain the position desired and patients often roll or slip out of position. Cushions, as well as all stationary supports, require attendants to raise the patient while being put in place and provide no ready means of changing the degree of elevation when once in place. The Lilienthal body elevator is a great improvement in many respects, in that the patient's body can be raised or lowered at will without touching the patient, and the position obtained is secure. Its only disadvantages are that it is usually made a stationary part of a table and can not be moved from one part of a table to another or fitted to other tables. Also, it provides only for horizontal elevation.

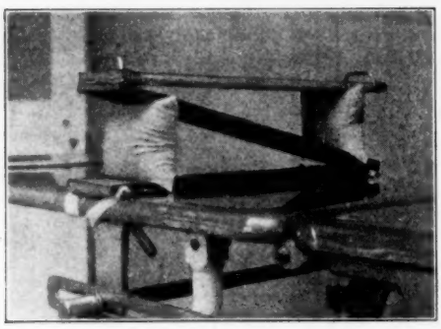


Figure 1.

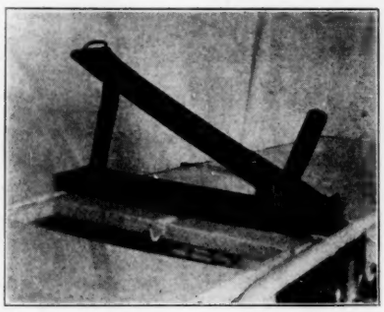


Figure 2.

Figure 3.

Fig. 1.—Showing elevation of both ends of the bar equally, as obtained by the Lilienthal elevator. Used to raise the upper abdomen in operations on the gall ladder, stomach, etc., to support the lumbar region in operations on the kidneys and to raise the hips in applying abdominal binder, hip spica, and cleansing the patient after operation. Small sand bags are shown bracing the ends.

Fig. 2.—Shows elevation of one end only (right) with pin in opposite end to prevent the patient from sliding. Pads can be placed over the pin to soften the pressure.

Fig. 3.—Unequal elevation of both ends with pin in the down side. This is about the position and elevation obtained with Cunningham's kidney table.

Herewith is presented a simple contrivance which can be attached to any operating table and to any part of it. By it elevation of the body from the hips to the shoulders can be obtained, of one side only, of one side more than the other, or both sides equally. As with Lilienthal's elevator, elevation is produced by a thin flat bar placed transversely across the table. By raising and supporting one end of the bar, elevation of the right or left side of a patient's body can be had. By lifting both ends of the bar equally, or one more than the other, both sides are elevated alike, or one more than the other.

The elevation of one side of the body more than the other introduces positions which possess features distinctly advantageous, though but little used and difficult to obtain. In operations on one kidney this has been recognized. In abdominal operations raising one side of the body induces the intestines to gravitate away from that side, in the same way that the Trendelenburg posture induces gravitation away from the pelvis, and the Hartley position away from the upper abdomen. Ordinarily, with the patient flat on the table the operator is required to stoop over the table in order to see the structures directly beneath his incision. For this reason he usually stands on that side of the patient in which he is to make his incision. If, however, he stands on one side of the patient and elevates the opposite side the surface of the abdomen is inclined in the same manner in which one holds a book, the opposite half of the abdomen is brought toward him and into prominent view, the deeper parts are tilted and come into more direct line with his vision, and the necessity and danger of suspending his head over the wound is lessened.

The apparatus here pictured consists of three strips of stout oak three-eighths of an inch thick by four inches wide, with beveled edges and joined by two strong hinges, as shown in the accompanying cuts. The top strip or bar is supplied with a handle at each end, to facilitate lifting the patient. The lower bar is made fast to the table by strong linen straps which pass beneath it. When the ends of the bar are raised they are held in place by sandbags of different sizes or solid supports. A wooden pin pressed firmly into holes at either end of the upper bar prevents the patient from sliding when one end is raised above the other.

The contrivance here described is only a crude model. One made of three strips of rigid metal with polished surface and disjointable hinges would be more suitable. It would be simple to supply the ends with one of the common forms of rachet with or without crank to raise and brace the ends, but the simpler any apparatus the better, and sandbags or braces which fit into notches are sufficient for all purposes.

In using this body elevator it is first securely fastened to the table and placed at the desired level. After the patient is on the table and anesthetized it is seen that his body lies on the elevator at the point to be raised. One or both ends are then lifted by the handles to the proper height and braced. Both ends can be elevated simultaneously by two attendants, or one side at a time by one person. After the patient is raised pillows are tucked under the body in order to distribute the weight and relieve the pressure of the bar. The degree of elevation can be altered at any time by raising one or both ends, and the field can be changed by lowering the bar and patient flat on the table, moving the patient, and again raising the support.

At first sight this elevator may seem to have several bad features. It might appear difficult to securely fasten it to the table. On the contrary, it is practically immovable. It has a tendency to topple over, but only when the attempt is made to pull the patient up or down on the table very far, after the support has been raised. From the photograph one might suppose that the end of the elevating bar might be in the way of the operator or assistant in certain positions. It has not proved so.

Phlebitis and Embolism After Laparotomies.—F. Jayle reports four cases of embolism in patients without the least edema whose convalescence was apparently progressing favorably. They succumbed suddenly the third, fifth, sixth and fourteenth days respectively. In each case the heart was fat and flabby, the venous system hypertrophied, the arterial tension low. Jayle's impression is that extreme dread of the operation predisposes to postoperative phlebitis, as also sluggish bowel functioning. When a patient comes to him from South America or from the French colonies—great meat-eating countries—he insists on a preliminary course of treatment of the digestive organs for several days or weeks before attempting an operation. The lesions most frequently followed by phlebitis are fibromas, especially those in the ligaments which press on the veins in the pelvis. The dorsal decubitus also favors phlebitis. He advocates operating on the predisposed in a position approximating the upright and on a very low table. The phlebitis made no sign in the fatal cases reported. When there are distinct symptoms of phlebitis he always feels reassured, as he has never known a case of fatal embolism with well-developed phlegmasia, and others report the same experience. The blood pressure should not be allowed to fall after the operation, and the patient should be allowed to sit up early. His communication is published in the bulletin of the Internes Society, Paris, April, 1908.

ABSCESS OF UTERUS; HYSTERECTOMY; RECOVERY.

GASTON TORRANCE, M.D.
Surgeon to St. Vincent's and The Hillman Hospitals.
BIRMINGHAM, ALA.

Salva Mersade[1] reports 41 cases of uterine abscess. Of these 22 were from puerperal infection; gonorrhea was the next most frequent cause; five cases were of tuberculous origin. He advises that laparotomy be done in all cases instead of attempting to open the abscess through the vagina. When the abscess is well isolated and the patient young, incising, curetting the cavity and drainage may be practiced. Total hysterectomy will probably be indicated in a majority of cases.

The following is the history of my case which was operated on four years ago:

History.—Mrs. R., age 31, of German parentage; family history negative; menstruation began at 13 years of age, was always regular and normal. She was married at 25; her first child was born fourteen months later; she had a normal labor, but has not been well since then; has had pain in back and in both ovarian regions, with considerable leucorrhea. Another pregnancy occurred two years later. This was also practically a normal labor, but since then her suffering has been very much greater, and she has scarcely been able to attend to household duties.

Abscess of uterus. A probe is passed through the uterine canal and a glass rod is placed transversely in the mouth of the abscess cavity.

Examination.—Vaginal examination shows a retroverted uterus, bound down by strong adhesions, considerable enlargement of both tubes, more marked on the right side; the pain has been much more severe on this side. Very tender on palpation.

Operation.—Under ether a median incision was made and the appendix and right tube and ovary were removed, the adhesions were broken up and what I supposed to be a deep-seated fibroid was found on the fundus, about half way between the right tubal junction and the mid-line. An incision was made to remove the supposed fibroid and opened up an abscess down in the uterine wall, containing about half an ounce of thin yellowish pus, probably of gonorrheal origin. Unfortunately this was thrown out without being examined bacteriologically. I did a supra-vaginal hysterectomy, closing the abdomen without drainage. She made an uncomplicated recovery, and left the hospital in two weeks, and is now in perfect health.

1. Les Absces d l'Uterus, Ann. de Gyn. et d'Obst., January, 1907; also, Surg. Gyn. and Obst., iv, p. 381.

AN EXTRAORDINARY CASE OF HYDROCEPHALUS.

MILLARD KNOWLTON, M.D.
TERRE HAUTE, IND.

The following case is of interest because of the unusual size of the head. I first saw the patient about nine months ago and again April 23, 1908, while visiting near Kokomo, Ind.

History.—The patient, a female child, was born July 24, 1906, and weighed five pounds at birth. It was the first child of its parents. The mother and father both came of large and healthy families. The mother was slender, weighed about 114 pounds, and was 19 years old when the child was born. The birth was natural, though the mother stated that she was in labor two days and one night. The mother first noticed that the baby's head was somewhat large when it was about two months old, but others had noticed that it was not exactly normal at birth. The head has steadily and rapidly increased in size.

Fig. 1.—Case of hydrocephalus, showing the distended veins, elevated eyebrows and clenched fists.

Fig. 2.—Tape-measure held over patient's head to give an idea of proportionate size.

Examination.—The head measured forty inches in circumference and twenty-nine inches from ear to ear over the crown. Distance from bridge of nose to edge of hair, eight inches. Pulse 140, respirations 40. There were tonic contractions of the muscles, giving rise to clenched fists, drawn limbs, etc. The mother claimed that this condition had prevailed during the entire life of the child. There were thirteen teeth erupted and the mouth apparently was sore. There was considerable deformity of the thorax, the anteroposterior diameter being greatly increased. There was little if any mentality.

The mother of the child has recently (about May 1) given birth to another child, which seems normal in every respect.

LICHEN PLANUS ANNULARIS.

JEROME KINGSBURY, M.D.
NEW YORK.

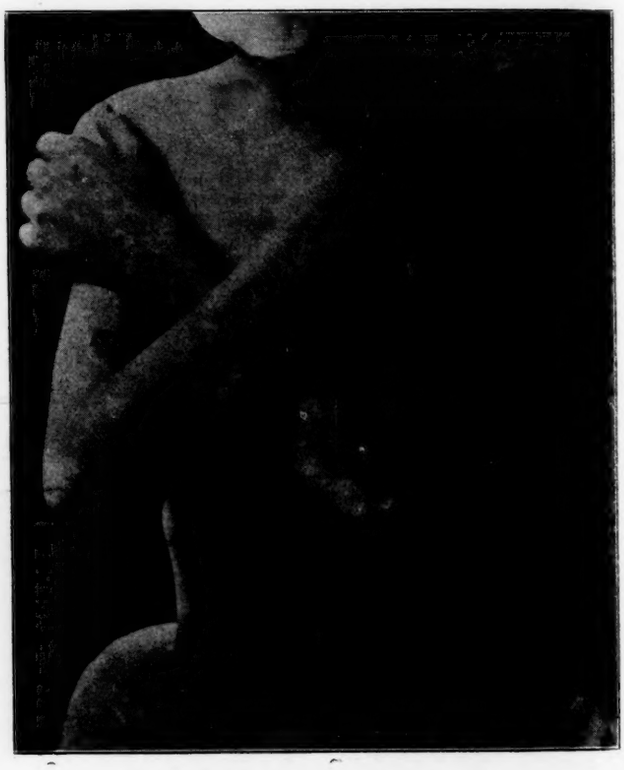
This case was presented at a clinical session of the Sixth International Dermatological Congress held at the Academy of Medicine, New York, Sept. 12, 1907:

Patient.—L. S., aged 9, schoolgirl, was born in this country, but of Russian parentage. She is anemic and poorly developed. Her mother states that the child's health has always been good but that she is extremely nervous and is easily fatigued.

Family History.—Father has had psoriasis for the past fifteen years and now presents typical lesions. Otherwise the family history seems negative.

History of Eruption.—The first lesion was noticed on the right arm eight weeks ago. It was then about an inch in diameter and at first was thought by the mother to be a ringworm. Soon other lesions appeared on the forearms and a little later on the chest, abdomen and legs. There is said to have been but little pruritus at any time.

Description of Eruption.—The annular lesions vary in diameter from half an inch to an inch and a half. The smaller ones are hard and present a firm border with central depression. The larger ones are on the arms and abdomen and in places show a fine grayish scaling. There are numerous discrete papules on the forearms and trunk. These have all the characteristics of the early lesions of lichen planus. White patches are to be found on the oral and vaginal mucosa.



Lesion in case of lichen planus annularis.

The accompanying illustration gives a good idea of the distribution of the eruption, but fails to show the dermatologic beauty of the individual lesions.

39 West Thirty-Ninth Street.

Position of Head in Anesthesia.—Alexander Blain, of Detroit, in the *New York Medical Journal*, May 9, states that the idea that the patient's head should be lowered is erroneous. As a rule, he asserts, the patient's head should be raised on a pillow. This is contrary to the teaching of most text-books, but patients invariably do better by this method.

Therapeutics

Jalap.

Jalap is the dried, tuberous root of a climbing vine which grows on the eastern slope of the Mexican Andes, and is also cultivated in India. It is named after Jalapa, or Xalapa, a city of Mexico. It has a slight smoky odor, and a sweetish and mildly acrid taste. The root yields about 8 per cent. of a resin which consists of jalapin and a glucoside, convolvulin, or jalapurgin.

The purgative action of jalap seems to be induced by the action of the bile, hence it begins its activity in the duodenum. It causes congestion of the mucous membrane of the intestines, probably increases the secretion of the intestinal glands, peristalsis is increased, and profuse, watery discharges are the result. There is often pain, and sometimes griping and vomiting. It seems to be less of an irritant than gamboge, podophyllum or scammony, but excessive doses will produce continuous purging. It causes a movement of the bowels in from three to four hours. It does not cause congestion of the pelvic organs or of the rectum, and is perhaps the mildest of the resinous cathartics. As it can not be detected in the urine, it is probably not absorbed, and as it is difficult to detect it in the stools, it is evident that it is partly or completely oxidized.

Jalap is a very useful cathartic, especially when it is desired to cause absorption of effusions. It is especially indicated for this purpose in ascites and in general anasarca, whether from cardiac insufficiency, renal disease or cirrhosis of the liver. It is also indicated when the brain is to be relieved of a too high blood pressure, or when there is congestion of the brain, in meningitis. It is valuable in hypertension, and is especially useful when there is venous engorgement from failure of the heart in dilatation in valvular disease, or in failure of the right side of the heart from emphysema. When any of these indications are to be met by the use of jalap it should be remembered that the intake of liquids should be restricted, that the profuse watery discharges may so deplete the blood as to cause it to resorb the water that it finds in the tissues or exudates in cases of dropsy, and in cases of venous engorgement from cardiac insufficiency, that it may relieve the heart of excess of fluid so that the hypostatic congestion may be relieved.

Jalap is also often the drug selected to increase the excretion of toxins by the intestines in renal insufficiency and when uremia is present or impending. In this instance, if dropsy is not present, considerable water may perhaps be taken to aid the dilution of the toxins in the blood and to promote the excretion by the skin as well as to increase the watery evacuations by the intestines. In other words, jalap, in three or four hours produces watery stools, causing considerable excretion of toxins from the blood, does not cause much irritation of the intestines, and if the dose is not too frequent, causes but little prostration. Its taste is not unpleasant, and, therefore, it rarely disturbs the stomach, and for this reason is often selected as a purgative in connection with anthelmintics when such are needed to remove intestinal worms in children.

The preparation of jalap most frequently used is:

PULVIS JALAPÆ COMPOSITUS, U. S. P., the compound powder of jalap, which contains 35 per cent. of jalap and 65 per cent. of potassium bitartrate (cream of tartar). The adult dose is 2 grams (30 grains). This may be repeated in five hours if there are no results. When necessary, this preparation may be given every morning for several days without causing prostration or intestinal irritation.

RESINA JALAPÆ, U. S. P., the resin of jalap, occurs in yellowish-brown masses or fragments, the fresh fracture appearing glossy and semitranslucent at the edges. When pulverized it is a yellowish-gray or yellowish-brown powder. It has a slight smoky odor and a somewhat acrid taste. The dose is 0.10 gram (2 grains). This preparation is an ingredient of the compound cathartic pill and of the vegetable cathartic pill, each of which contains 0.02 gram of this resin.

The National Formulary recognizes three preparations of jalap, viz.:

FLUIDEXTRATUM JALAPÆ, dose 1 c.c., or 15 minims.

TINCTURA JALAPÆ (20 grams of jalap in 100 c.c.), dose 5 c.c. (1 fluidram, a teaspoonful).

TINCTURA JALAPÆ COMPOSITA contains in each 4 c.c. (1 fluidram) 0.50 gram (7½ grains) of jalap and 0.13 gram (2 grains) of scammony. The dose is a teaspoonful.

These tinctures or alcoholic extracts of jalap do not quite represent the whole activities of the drug, as part of the activities are extracted only by water. The alcoholic extracts are said to be more griping than the aqueous extracts.

℞.	gm.		
Pulveris jalapæ compositi	10	or	ʒiiss

Fac chartulas 5.

Sig.: One powder, with water, and repeated in five hours, if needed.

Or:

℞.	gm.		
Pulveris jalapæ compositi	5	or	gr. lxxv
Hydrargyri chloridi mitis	1		gr. xv

M. et fac chartulas 5.

Sig.: One powder, with water, and repeated in five hours, if needed.

Or:

℞.	gm.		
Pulveris jalapæ compositi	10	or	ʒiiss
Potassii et sodii tartratis	50		ʒii

M. et fac chartulas 10.

Sig.: A powder, with water, daily, before breakfast.

Pulmonary Hemorrhage.

The question of the proper treatment of this condition or emergency constantly recurs and it seems to be necessary to reiterate the advice that the blood pressure should not be raised by such drugs as ergot, digitalis, etc., with the idea of stopping the bleeding. All hemorrhage from the lungs, unless it is from an aneurism, tends to stop, but the proper treatment for the condition is to lower the blood pressure with nitrites.

At a recent meeting of the American Therapeutic Society, in Philadelphia (May 7-9, 1908), Dr. Lawrence F. Flick, Philadelphia, stated in a paper which he read on the treatment of tuberculosis that whenever he found a pulmonary second sound accentuated or increased in force he put the patient immediately on nitroglycerin, and in this way he believed he minimized the danger and frequency of hemorrhages.

Dr. Albert P. Francine, in the *Pennsylvania Medical Journal*, January, 1908, very ably discusses the treatment of hemoptysis. He uses the official spiritus glycerylis nitratis in one-minim doses immediately on the occurrence of pulmonary hemorrhage, and repeats the dose at two-hour intervals, or oftener in severe cases, and in severe hemorrhage has given a minim (two drops) every half-hour for four or five doses. If the hemorrhage is alarming and the patient is nervous, he administers ¼ grain of morphin with 1/150 grain of atropin, hypodermatically. It is often advisable to use morphin to quiet the patient's nervousness in pulmonary hemorrhage, but ⅛ grain, or one-half the above, is almost invariably sufficient. If this small dose is administered atropin is then not needed to stimulate the respiratory center or to prevent the overaction of the morphin, and, as it is a vasoconstrictor, it is best not to administer it.

Francine lays down the usual rules for the immediate treatment of this condition, viz., absolute rest, flat on the back with one or two pillows as the patient prefers. Talking must be forbiddden. No warm drinks, alcoholic or otherwise, are allowed, and no solid food is permitted. Cracked ice in small amounts may be given to dissolve in the mouth, and perhaps a light weight, flat icebag may be put over the heart to quiet its overaction. Similar icebags may be placed over the site of the bleeding, if deemed advisable. Strapping the chest on the affected side and limiting its mobility is sometimes of service, and Francine speaks of the occasional necessity of bandaging the extremities so as to retain the blood in them until the hemorrhage ceases. If this is done the banadages should be loosened gradually and not all at once, so that too much blood will not be thrown into the lungs at one time.

It is probably rarely advisable in pulmonary hemorrhage to

do transfusion with blood, salt solution, or any other solution, or even to do hypodermoclysis.

Francine thinks that after the arrest of the hemorrhage the patient should be kept in bed at least ten days. This, of course, depends on the amount of the hemorrhage and its cause.

Francine advises the usual treatment to prevent hemorrhage, viz., the administration of calcium chlorid or lactate, and the feeding of gelatin, as a jelly. He cautions against using large doses of calcium chlorid too long, as it tends, in large doses, to interfere with the coagulation of the blood. This caution was concurred in by Dr. Meyer Solis-Cohen, of Philadelphia, in discussing Francine's paper; he stated that Dr. A. E. Wright, of London, has shown that when large doses of calcium chlorid are given for some period, the coagulation of the blood is interfered with. Therefore, after two or three days of the ordinary dose of calcium chlorid, it is well to suspend its administration.

℞.	gm. or c.c.		
Calcii chloridi	5		gr. lxv
Acaciæ granulatæ	15	or	ʒiii
Aquæ cinnamomi	100		ʒiii

M. et Sig.: A teaspoonful, in plenty of water, every three hours.

Calcium chlorid, in spite of the mucilage, is irritant to the stomach and sooner or later causes considerable irritation, consequently the following tasteless preparation is the better:

℞.	gm.		
Calcii lactatis	6	or	ʒiss

Fac chartulas 20.

Sig.: One powder, with water, every three hours.

Colocynth.

Colocynthis, U. S. P. (genitive, colocynthidis), is the peeled, dried fruit of a climbing vine which grows in the Eastern Hemisphere. It is also called bitter apple, or bitter cucumber, as the fruit resembles a small orange or gourd. The part of the fruit used for medicinal preparations is the pulp, the seeds of the fruit being discarded. The pulp contains about 0.6 per cent. of an amorphous glucoside, colocynthin, which is the active principle. The taste of colocynth is bitter, and its active principle is soluble in water and alcohol.

In small doses it increases the flow of saliva, and may act as a stomachic, but in larger doses it is irritant to mucous membranes and may cause vomiting. It increases the intestinal secretions and stimulates peristalsis, causing copious watery movements, and if the dose is large it causes severe colic. A large dose may cause gastroenteritis, with bloody stools, and by its irritation may indirectly cause abortion, as may the other irritant cathartics. It may act as an hepatic stimulant, and has been said to have slight diuretic action, showing that some of it may be absorbed.

This drug is rarely prescribed alone on account of its irritant properties, it being better to use a small dose of it combined with other cathartics than a large dose. Colocynth in such small doses has long been used in habitual obstinate constipation, and perhaps most frequently as the compound extract. It should be avoided in all conditions of gastrointestinal inflammation, peritoneal inflammations, and in pregnancy.

There is probably no real good reason for the administration of colocynth. As previously stated in this discussion of cathartic drugs, when an active purge is needed drugs other than the drastic cathartics are better and safer. In chronic constipation even small doses of the irritant cathartics tend to make the condition worse; they are certainly not curative. If vegetable cathartics are desired to produce large watery stools, jalap or elaterium are the best drugs to use.

The dose of colocynth is 0.065 gram (1 grain).

The official preparations are:

EXTRACTUM COLOCYNTHIDIS, extract of colocynth. Dose, 0.03 gram (½ grain).

EXTRACTUM COLOCYNTHIDIS COMPOSITUM, compound extract of colocynth. This is composed of 16 per cent. of extract of colocynth, 50 per cent. of purified aloes, 6 per cent. of cardamom, 14 per cent. of resin of scammony and 14 per cent. of soap. The dose is 0.50 gram (7½ grains). This preparation is an ingredient of the compound cathartic pill, and of the compound vegetable pill. Colocynth is also an ingredient of several National Formulary pills.

Cardiospasm.

This is a name applied to a spasmodic contraction of the cardiac extremity of the stomach, and is, perhaps, a more frequently undiagnosed condition than has been thought.

Dr. Charles A. Wingerter, of Wheeling, W. Va., in the *West Virginia Medical Journal*, December, 1907, describes this condition. It occurs in "two forms: as a transitory paroxysmal affection lasting a few hours or even a couple of days, or as a chronic condition which may extend over a number of years." The acute cramp is short and painful, and is difficult to diagnose. The chronic type of cardiospasm is a more serious affection, as it interferes with the general nutrition of the patient and soon makes him an invalid.

Wingerter lays stress on the order of the symptoms as diagnostic, viz., early spasmodic pain, later regurgitation, and still later, retention of food a greater length of time after the meal before the regurgitation takes place. The pain comes on suddenly, and often radiates to the back or neck. In the intervals the patient is apparently well. After some weeks this spasm of the cardia causes a dilatation of the lower end of the esophagus. From this time on the pain, distress and regurgitation are more or less continuous, and emaciation begins. Soft food may still pass through the narrowed cardia, and if enough liquid and soft food is taken, the nutrition may keep fairly good and the regurgitation from the diverticulum may even become less frequent. The reaction of this regurgitated food is always alkaline, it is not acid, showing that it did not come from the stomach.

The cause of cardiospasm may be an ulceration, a new growth, hyperchlorhydria, or hyperesthesia of the mucous membrane at the cardia. This, of course, may occur with neurasthenic and hysterical patients, but is probably often present when patients are considered neurasthenic and may be the cause of the neurasthenia. It occurs in both sexes and at any age.

In the treatment of this condition, of course, if possible all local irritation must be removed, as gastritis or hyperchlorhydria. Some patients have the spasm of this muscle as a neurosis, especially when certain articles of food are eaten, particularly when by some previous experience they have found that such and such a food was followed by this sudden pain and perhaps regurgitation. Such patients need suggestive treatment, as, if the patient can be made not to expect the attack, almost any food may be taken without harm. A spasm being present, morphin or codein will stop it. Antipyrin has been recommended, and some patients do well with bromids. In its primary stage, no tangible cause being found, the patient should be treated as a neurotic. This means institution of any rest cure, change of climate, massage, hydrotherapy or psychopathic treatment deemed advisable.

When the cardiospasm can not be relieved by any of these means and the condition has become chronic, operative dilatation of the cardia must be done, either by esophageal dilators or by opening into the stomach and dilating from below.

An article on this subject, with a report of forty cases, will shortly appear in THE JOURNAL.

Iritis.

Dr. Aaron Brav, Philadelphia, (*New York Medical Journal*, Feb. 22, 1908), carefully describes the treatment of this frequent inflammation of the eye. He says that it is a disease of long duration, requiring from six to twelve weeks to effect a cure, a short duration depending entirely on the prompt application of therapeutic measures. The disease is subject to "remissions, exacerbations and recurrences, and in no other ocular disease is the clinician confronted with so many problems on the prompt solution of which depends the ultimate success of the treatment." The recognized causes of iritis are "syphilis, rheumatism, tuberculosis, scrofulosis, malaria, anemia and the infectious fevers."

Dr. C. Higgins, London, senior consulting ophthalmic surgeon, Guy's Hospital (*The Lancet*, April 25, 1908) states that iritis is frequently due to the poison of gonorrhea, although

the original infection may have occurred many years before. He thinks this is very frequent in men; perhaps rare in women. The results of this gonorrheal iritis include all the serious consequences to the eye to which iritis is prone.

Brav considers the treatment of iritis under the following headings:

1. To give complete rest to the inflamed organ until all the inflammatory signs have subsided.

2. To relieve pain so as to enable the patient to sleep well and allow Nature's recuperative powers to exert their influence.

3. To prevent, so far as possible, any serious sequelæ, such as the formation of posterior synechiæ."

He says that as a routine practice, eye lotions are not needed, and that irritating eye washes are positively contra-indicated. Both eyes should have absolute rest from use, even if but one is affected. Smoked glasses should be used, so that the patient may not be confined to a dark room, although during the acute stage the patient should be in bed and bright light prevented from entering the room. When the pain subsides the patient is better out of bed and in the open air. The diet should be mild and non-stimulating, as in any other acute inflammation, and at the beginning of treatment a good purgative, best perhaps calomel, should be given. Brav gives magnesium sulphate every morning, to be repeated in the evening, if necessary, as:

℞.	gm. or c.c.		
Magnesii sulphatis	50		℥ii
Syrupi limonis	50	or	fl℥ii
Aquæ	ad 150		ad fl℥vi

M. et Sig.: A tablespoonful, in half a glass of water, before breakfast.

The most important drug in the treatment of iritis is atropin, which should be used in sufficient doses to produce its full physiologic effect on the pupil. When used in the eye it rarely produces poisoning in the adult, but in children should be used with care. Brav uses a 1 per cent. solution, as:

℞.	c.c.		
Atropinæ sulphatis	10	or	gr. iss
Aquæ destillatæ	10		fl℥iiss

M. et Sig.: One drop in the affected eye every hour until the pupil is dilated; then one drop every eight hours.

[All strong preparations of atropin or similar drugs should be labeled "poison."]

In children a 0.5 per cent. or 0.25 per cent. solution should be used, as deemed advisable, but when atropin causes unpleasant symptoms Brav suggests the following:

℞.	c.c.		
Duboisinæ sulphatis	0.5	or	gr. ½
Aquæ destillatæ	10		fl℥iiss

M. et Sig.: One drop instilled into the affected eye every eight hours. Or:

℞.	c.c.		
Scopolaminæ hydrobromidi	0.15	or	gr. ¼
Aquæ destillatæ	8		fl℥ii

M. et Sig.: One drop instilled into the affected eye, three times daily.

If undesirable symptoms from the action of atropin occur, such as very uncomfortable drying of the throat, palpitation, flushing of the face, and cerebral excitation, then the stronger atropins must be discarded and homatropin used.

℞.	c.c.		
Homatropinæ hydrobromidi	0.40	or	gr. vi
Aquæ destillatæ	10		fl℥iiss

M. et Sig.: One drop in the affected eye every hour.

[If both eyes are inflamed, the strength of the above preparations, in order for a drop to be used in each eye, must be reduced.]

During the course of the inflammation the tension of the eye must be carefully watched lest glaucoma develop, though a temporary increase in intraocular pressure is often seen. As soon as the eye shows increased tension, Brav thoroughly evacuates the bowels, gives absolute rest, and stops the atropin. If the tension does not then in a few hours decrease he uses eserin, as:

℞.	c.c.		
Physostigminæ sulphatis	0.3	or	gr. ½
Aquæ destillatæ	8		fl℥ii

M. et Sig.: One drop in the affected eye every hour.

Brav says that it is not often necessary to have recourse to this treatment, and it is rarely necessary to employ surgery to prevent glaucoma from iritis.

The value of atropin in iritis is to dilate the pupil and thus to prevent posterior synechiæ. It also contracts the iris, thus reducing congestion, and paralyzes the ciliary muscles, thus giving the iris absolute rest.

If the pain from the inflammation is not stopped by the atropin, hot moist compresses, frequently changed, should be employed. Poultices are not needed. If the pain persists in spite of such treatment, leeches should be applied, one or two to the temporal region, care being taken to avoid the large blood vessels. If in spite of such treatment the deep-seated pain in the orbit continues, so as to prevent sleep, morphin must be used, and best hypodermatically.

If the iritis is due to rheumatism, salicylates are advisable, and Brav recommends the following:

℞.	gm. or c.c.		
Sodii salicylatis	15		
Potassii iodidi	15	or	āā, ℥ss
Syrupi sarsaparillæ compositi	100		fl℥iii

M. et Sig.: A teaspoonful, with plenty of water, every four hours.

Brav finds suprarenal solutions useless, and perhaps harmful.

Cocain may be combined with atropin at times, as:

℞.	c.c.		
Cocainæ hydrochloridi	0.3		
Atropinæ sulphatis	0.3	or	āā, gr. ss
Aquæ destillatæ	8		fl℥ii

M. et Sig.: One drop instilled into the affected eye, every three or four hours, if necessary.

The treatment of hypopyon or posterior synechia is a subject for a specialist.

As it is stated that at least 50 per cent. of iritis is caused by syphilis and that mostly in the secondary stage, constitutional treatment during such iritis is that of the syphilis, and mercury is the important drug. Brav thinks it is best administered in the form of an ointment, and advises the rubbing on of 4 grams (1 dram) of the unguentum hydrargyri into the skin twice daily, choosing different parts of the body at each application. If symptoms of mercurialism occur, of course the drug should be temporarily stopped, and during its administration alkaline mouth washes should be used.

When the inflammatory symptoms are declining Brav finds potassium iodid of value in promoting the absorption of the inflammatory products. Syphilis having been the cause of the iritis, of course it must be long treated else the iritis may recur, as well as other symptoms of syphilis.

If rheumatism is the cause of the iritis he would not only give salicylates, as intimated above, but during the height of the disease he would give large doses, as a gram of sodium salicylate (15 grains) every four hours, during the daytime.

After the iritis has subsided, especially after antisyphilitic or antirheumatic treatment, the patient generally needs iron.

Dr. Higgins, in the article above referred to, says that the treatment of gonorrheal iritis is most unsatisfactory. Mydriatics (atropins) irritate, and rise of tension in the eye is of frequent occurrence; consequently they must be used with caution. He believes in hot fomentations to the eye, and in the value of leeches, and he also sounds a note of warning against the use of suprarenal solutions and cocain. The first effect of their action is satisfactory, but the after-effects are harmful.

For Warts.

℞.	gm. or c.c.		
Acidi salicyli	1		gr. xv
Liquoris formaldehydi	1	or	m. xv
Petrolati albi	15		℥ss

M. et Sig.: Rub into the part affected twice daily.

For Hemorrhoids.

℞.	gm.		
Extracti belladonnæ fol.	1		
Extracti opii	1		āā, gr. xv
Antipyrinæ	3	or	gr. xlv
Cerati plumbi subacetatis	10		ʒiiss
Unguenti	30		℥i

M. et Sig.: Use externally as directed.

—*New York Medical Journal*, July 6, 1907.

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SNAKE POISONING IN THE UNITED STATES.

Under the above heading is compiled by Dr. Prentiss Willson a valuable summary of a topic which should be familiar to every practicing physician.[1] There are few localities in the United States in which poisonous reptiles may not be found, at least occasionally, and still more widely spread are harmless snakes that are popularly believed to be deadly. The same instinct which causes almost every man impetuously to ruin his trout rod or midiron on any innocent little reptile that strays across his path causes every mother of a snake-bitten child to believe that all snakes are deadly, and every physician is liable to be called on to determine whether or not a certain snake is poisonous. He should know, therefore, that besides the rattlesnakes there are but three species of poisonous snakes in the United States, and all are easily recognized. One, the coral snake, has but a narrow range of distribution in the southern part of the country and is distinguished by its brilliant markings; the other two, the water moccasin and the copperhead, are characterized like the rattlesnake by the presence of a deep pit between the eye and the nostril and by undivided ventral scales on the tail. All the other snakes in this country are harmless, and for the most part useful members of society, destroying insects, field mice and other pests, and entirely undeserving of the ignorant persecution they suffer on account of their wicked relatives. If this fact were universally appreciated by physicians much unnecessary anxiety and undesirable therapeutics would be spared.

Willson has collected from the literature and from private sources 740 cases of poisoning by snake bites in the United States, and his studies make it very apparent that we need more careful clinical reports of cases of snake poisoning than are at present to be found in the literature. Thorough autopsies are especially needed, there being but four recorded and these so incomplete as to be nearly worthless. Of 566 bites in which the species of snake was known there were 408 cases of rattlesnake bite, 97 cases of copperhead bite, 53 cases of water moccasin bite, and 8 cases of coral snake bite.

Credit for the earliest studies of the nature of snake venoms comes to America, the pioneers having been Bonaparte, Weir Mitchell and Reichert, and much of the more recent work of importance has been produced in this country. Snake venoms are remarkably complex poisons, differing in different species of reptiles, among the ingredients having been found fibrin ferment and antiferment, proteolytic enzymes, cytotoxins for red corpuscles, leucocytes, endothelial cells, and, especially important, the neurotoxins. The venoms of our poisonous American snakes are characterized by producing very severe local effects at the point of injection, and hemorrhages throughout the body, while they affect the central nervous system much less than the venom of such snakes as the cobra. For equal doses the water moccasin and copperhead venoms are more toxic than rattlesnake venom, but the large size attained by some species of rattlesnakes makes them much more likely to inject a fatal dose than the smaller copperheads. Of the 740 cases collected by Willson, 78, or 10.5 per cent., were fatal, and in these statistics the water moccasin seems to be especially deadly, being surpassed in this respect only by the largest species of rattlesnakes.

It seems possible that, in some localities, the treatment of snake bite is more dangerous than the disease. Uncleanly local treatment of the wound, when the resistance of the tissues is greatly lowered by the venom, favors septic infection, while alcohol poisoning is often enough more serious than the snake poisoning. Nothing could be more irrational and dangerous than the popular notion concerning the antagonism of whisky and snake bites, and Willson reports that several of the fatalities in his series were directly due to alcohol rather than to the bite. In one case a boy of 3 years was given over a pint of whisky! Careful local treatment of the wound, directed toward lessening absorption and avoiding infection, together with logical symptomatic treatment, offer the best hope in these cases; and raising the weakened blood pressure by adrenalin, saline infusion and abdominal compression is a valuable procedure. The outlook for antitoxin therapy does not seem to be promising, for, in the first place, it is doubtful if the morbidity and mortality from snake bite in the United States will ever warrant the commercial production of antisera specific for rattlesnake and moccasin venom, which is a far more difficult task than the preparation of serum for cobra venom.

Such a thorough analysis of the subject of snake poisoning in the United States as is provided in the article quoted above has long been needed, for general information on this topic is decidedly meager and strongly tainted with local traditions and superstitions. We recommend its careful study by all physicians practicing in snake-infested communities.

1. Archives of Internal Medicine, June, 1908, p. 516.

SPECIAL TRAINING FOR ATTENDANTS IN INSTITUTIONS FOR THE INSANE.

A novel and interesting educational experiment is to be inaugurated this summer by the Chicago School of Civics and Philanthropy. Under the leadership of Miss

Julia Lathrop, for many years a member of the Illinois State Board of Charities, and now director in this school, a summer course has been arranged for attendants in institutions for the insane and mentally defective. The course has been planned with skill and originality, the object being to show the educational value of occupation, and to afford practical training in those handicrafts which are familiar in kindergartens and manual training schools. In addition, lectures are offered on the elements of psychology, pedagogy and psychiatry and on sociologic subjects. Thus the attendant is to be given training which will fit him to undertake new and important duties in the care of the insane, making of him a teacher and not merely a custodian.

It is true that occupations of various kinds have already been introduced into many institutions, and in some there are even teachers of manual training. But these advantages are offered only to the better class of patients, and the larger number—many of whom need occupation, although they are incapable of learning a handicraft—remain unprovided for. We are all familiar with the discouraging aspects of the typical insane ward, the rows of cleanly dressed patients seated in absolute idleness for hours together, their attendants satisfied with supplying their bodily needs and making no effort to rouse and stimulate them, or with the no less discouraging "restless ward," where so long as the patients give no serious trouble they are left quite without direction for their activities. The Chicago school aims to fit attendants to teach occupations suited to all grades of patients, from simple, childish games to skilled handicrafts. Many a patient just emerging from the depressive stage, many restless patients who for lack of occupation become "dangerous," may be greatly helped by judiciously planned work, and, just as in the education of children games are recognized as of great value, so in the re-education of retrograded minds games can be used to bring back the capacity for muscular coordination, for self-control and cooperation with one's fellows.

The promoters of this novel scheme state that they offer the course to attendants rather than to nurses because the attendants are the constant companions of the patients and all efforts to educate the latter must succeed or fail according to the attitude of the attendants. It has been repeatedly pointed out by all who are familiar with the workings of asylums for the insane that the crux of the situation is the character of the attendant.[1] The sporadic efforts at reform instituted at moments of public indignation over some scandal leave little permanent result so long as they fail to strike at the root of the matter—the personnel of the attendants. In all asylums for the insane the complaint is made that it is so difficult to get a good class of attendants, and yet very little is done to train and improve the material which is at hand. The life of an attendant in an insane asylum is strenuous, joyless and singularly isolated. Such an institution is usually a little world in itself, and the ideas and changing views of the outer world are slow in penetrating. Routine rules supreme, with all its warping and deadening influence. The standards of the attendant are satisfied when a certain modicum of physical well-being is provided for his patients, but the real purpose of the asylum—the re-education and rehabilitation of diseased minds—does not cross his horizon.

The proposed summer school in Chicago represents the first effort of this kind to transform the asylum attendant into an intelligent teacher and to substitute educational for purely custodial care. It is to be hoped that the school will achieve its purpose and that it will inaugurate a new system of training for those in charge of the insane in other states as well as Illinois.

1. Beers: The Mind that Found Itself.

REGISTRATION OF VITAL STATISTICS IN PENNSYLVANIA.

The first "Annual Report of the Commissioner of Health of Pennsylvania," which has just appeared—we do not know why it is so belated—covers the work done by the Department of Health of that state from June 6, 1905, to Dec. 31, 1906, and represents the results of the application of recent legislation to the hygienic affairs of a great state. One of the first advances made is the addition of a number of communicable diseases to the list of those usually required. This innovation has been very successful. One of the most notable advances is the registration of vital statistics. Previous to the enactment of the law of May 1, 1905, the collection of vital statistics in Pennsylvania was in a very unsatisfactory condition. The working of the new law has enabled the state to be included in the registration area of the United States Bureau of the Census. The law is an excellent one and has been used as a guide by the Committee on Medical Legislation of the American Medical Association in drafting the model law recommended for adoption by states lacking an adequate vital statistics act. The essence of the Pennsylvania law is that the work of collecting, reporting and registering vital statistics shall be done by paid officers of the state, who shall be under the control of the state board of health. The keynote of the Pennsylvania administration is compulsory obedience of the reasonable requirements of the law and infliction of the penalties of the law in cases of its violation.

One sad feature revealed by the statistics is the increase in suicides and especially in suicides of children. The rapid increase of homicides also calls for investigation and explanation. The birth statistics indicate a slight reduction in the birth rate. The shortening of the child-bearing period by late marriages due to the entrance of women into gainful occupations, is held in part responsible for this situation.

A matter of great importance in which Pennsylvania is taking advanced ground is the prevention of the pol-

lution of streams by municipal or private action. The need of such action is only too apparent. The law makes ample provision for regulation by the board of health of the state, but in many cases a strict enforcement of the provisions of the statute would work great hardship to communities already burdened with debt to the limit, and hence unable to make the necessary alterations to prevent pollution of the stream into which their sewage is emptied. In such cases the commissioner has been considerate and has endeavored to cooperate with municipal authorities, and reasonable delay is allowed. Extensions of the sewerage system must, however, be made in compliance with plans contemplating treatment works for the purification of sewage in the future.

Much dependence is placed on education of the public in furthering the work of the state sanitary authorities. This is applied with regard to communicable diseases, disinfection, water protection, sewage disposal, the antituberculosis movement and other matters within the sphere of public sanitation. The report, as a whole, indicates a new era in home and public sanitation for Pennsylvania, which, it is hoped, other states will follow.

VACATIONS AND HEALTH.

Vacations are taken mainly with the idea of improving health, yet it often happens that people return to their homes suffering from some form of ill health due to lack of care, and frequently they need additional rest after their return. Vacations during hot weather are especially likely to be followed by unfortunate consequences, for often they have to be taken in unusual surroundings, the sleeping quarters may be more cramped than at home, the food may be unusual and may be eaten irregularly, and the exposure to the sun with unaccustomed exercise may create a condition of lowered vitality which heightens the danger from toxic substances from food, so much more likely to spoil in hot weather, and from infectious bacteria, which grow so much more luxuriantly at high temperatures. In a word, there are so many dangers that the weeks of intermission from a busy occupation may prove anything but the re-creation it is hoped to be and may instead have at least annoying consequences. This is as likely to be true for physicians as for their patients, and there are certain warnings that need to be emphasized at this time.

The old Romans succeeded in conquering the world as much by their ability to maintain the health of their troops in their various campaigns as by the courage and organization of their soldiery. Some of the maxims of their army regulations would be worth keeping before the mind of the vacation tourist who wanders far from home and into unusual conditions during the summer. One of the principal of these was: "In the land of the enemy beware of the water and certain times of the day that the inhabitants of the country deem dangerous." Another was: "Avoid countries with swamps which are sources of diseases, and deserts and mountains without trees." A third that is especially applicable at this time of the year was: "The soldier must not be without protective shelter. A man must guard against the rays of the sun, and begin the day's work very early." These wise old Romans realized just what were the special dangers of people traveling far from home. These were the water, certain times of the day, the heat of the sun, and swampy ground. We are likely to think that the ideas behind these maxims are much more modern. If tourists would take them to heart there would be much less aftermath of disease following vacations.

It was especially exposure to the heat and the sunlight that the Romans insisted on as most enervating. There is probably nothing that lowers resistive vitality and lays one open to the influence of disease like exhausting exposure to the sun. In recent years so much has been said of the benefit of sunlight that we sometimes forget that, like every other good thing in excess, it may be intensely harmful. Exposure to the sun is likely to be especially baneful if its effects are not neutralized by longer hours than usual of restful sleep. It is this especially that travelers are likely to miss. Most people do not sleep so well away from home as at home. Often the feeling that one is losing the precious hours of vacation is allowed to shorten the time spent in bed. For the very young this policy may not prove harmful, though it must not be forgotten that it is among them that we most frequently see the sad results of vacations supposed to be taken for health improvement. Among the middle aged, however, there is no doubt that unless taken with some of the Roman maxims in mind, vacations may well prove more harmful than beneficial.

EXPLOITING THE TUBERCULOUS.

The latest scheme for utilizing the physician as a decoy in a "hold-up game," in which wealthy tuberculous patients or their friends play the part of the unwilling, and apparently unconscious, victims, hails from Arizona. Located at Tucson, Ariz., there is a stock corporation which rejoices in the euphonious, if somewhat enigmatic, name of "The Southwestern Extraforaneous Company." Now extraforaneous—which is classed by the Standard Dictionary as a "rare" word—means "situated outside the door"; in other words, out-of-doors. The name, in brief, is that of a sanitarium for the tuberculous. As the circular says, to "attract moneyed consumptives" it is desirable to have physicians as agents and to secure their services "it is necessary that they be stockholders of the company." But—and here is the kernel of the nut—in addition to receiving dividends as stockholders, each "agent physician receives a liberal commission based on the receipts from the patients sent by him." "Agent physician," by the way, is a good

term—one tending to promote a feeling of self-respect! The great advantage to be derived from this system of secret commissions is the fact that the "agent physician will also be careful to send only those patients who are wealthy . . . as otherwise he would reduce his commissions and dividend on his stock." But the dividends, apparently, are but an incident—the drawing card is the commission; for the circular points out that "in view of the fact that we pay a liberal commission based on the receipts from the patients sent us, we feel that our agents should not look too much to dividends." As the company is capitalized at $1,000,000 this suggestion to the stockholders is possibly to forestall disappointment. The pamphlet referred to is entitled "Physician's Edition." As in it the statement is made that "in the successful treatment of consumptives the patient must be kept in a . . . contented state," it is assumed that the descriptive circulars sent to prospective patients do not include a copy of the "Physician's Edition." It would hardly be conducive to "a contented state" for even the wealthiest of consumptives to know that a certain percentage of the money he was paying for board and lodging at the Southwestern Extraforaneous Company's sanitarium was surreptitiously being forwarded to his family physician in the form of commissions.

EXAMINATION OF THE DIASTASE FERMENTS AND THE VALUE OF THE COUNCIL'S WORK.

The report of an examination by the Council on Pharmacy and Chemistry of various diastase ferments, which appears[1] in this issue, calls attention to a fact too often overlooked or forgotten. We refer to the great value to physicians of an impartial examining body for determining the efficiency of the various therapeutic agencies offered them by manufacturers. There was a time when the medical profession had to get its scientific reports on the physiologic or chemical value of a proprietary product from the respective makers of such products. That in such reports, coming even from firms of the highest standing, the personal equation was likely to play an undue part was, in the nature of the case, unavoidable. It is to be expected that manufacturers marketing a preparation will naturally apply such tests for determining its value as will place their products in the most favorable light. That time is past; the medical profession is to be congratulated on having, in the Council on Pharmacy and Chemistry, a body under whose direction the various preparations put on the market may be examined scientifically and without commercial bias. Probably no class of medicinal agents has received so much commercial exploitation as that comprising the digestive ferments; and of this class the diastasic products have been the favorite. As to the questionable need or value of the digestive ferments in general this examination has nothing to do. Only this fact is considered: Do the starch converters really do the amount of work claimed for them? The examination shows that "the digestive values are all lower than claimed." Particularly was this found to be true in the case of Taka Diastase, a product which has probably been more extensively advertised than any similar preparation that was ever offered to physicians. In its liquid form this digestant was found to lose strength very rapidly, and, whatever may be its converting power when sent from the factory, after being on the druggists' shelves for a short time it becomes practically inert. The solid preparation, also, was "far from satisfactory." The examination, in short, simply confirms the statement so often iterated and reiterated in these columns: Accept with large mental reservations the claims made by manufacturers for the various products in which they hold proprietorship.

1. Pharmacology Department, p. 140.

Medical News

DISTRICT OF COLUMBIA.

Must Stamp Oleomargarin.—Secretary of Agriculture Wilson has made a ruling in which he declares the regulations recently promulgated, to become effective July 1, requiring the stamp of government inspection on oleomargarin, shall stand as made. This decision upholds the contention of the dairy interests in their controversy with the oleomargarin manufacturers.

To Prevent Escape of Patients.—The board of charities has forwarded a communication to the commissioners favoring more stringent rules governing the establishment and maintenance of private hospitals and asylums in the District in order to prevent the escape of patients from such institutions while under treatment. Reference is made to several fatalities due to the negligence of attendants.

Personal.—Dickinson College has conferred the degree of LL.D. on Dr. Hugh M. Smith, deputy commissioner of fisheries.——Dr. Joseph Tabor Johnson has been elected president of the Washington Country Club.——Dr. P. G. Smith has been appointed superintendent, and Dr. J. M. Pearson resident physician, of the new tuberculosis hospital recently erected at Georgia Avenue N. W. at a cost of $100,000.

Health Report.—According to the health and mortality record for the week ended June 20, there were 116 deaths and 116 births in the District. Of the deaths, 70 were white and 46 colored. Of the births, 82 were white and 34 colored. The excessive heat resulted in doubling the infant mortality as compared with the previous week. The number of diphtheria cases was increased, there being 11 under treatment. Ten new cases of typhoid brought the list up to 79, and 8 new cases of measles and 9 chickenpox were reported.

ILLINOIS.

Smallpox.—There have been three additional cases of smallpox discovered at the Rock Island County farm, but none of the patients is seriously ill.

Society Organized.—The physicians of LaSalle and Peru, on June 23 met and organized the Twin City Medical Society, a branch of the LaSalle County Medical Society. The following officers were elected: President, Dr. B. J. Nauman, Peru, and secretary, Dr. Frederick A. Guthrie, LaSalle.

Personal.—Dr. S. Walter Ransom has been appointed associate professor of anatomy in the Northwestern University Medical School, Chicago.——Dr. Don A. Vanderhoof has returned from Vienna and located with Dr. Horace M. Starkey in Rockford.——Dr. James A. Rutledge, Elgin, has been made a member of the board of directors of Modern Woodmen of America.

Chicago.

Election.—At the annual meeting of the South Side Medical Society, June 19, Dr. Edwin B. Tuteur was elected president and Dr. F. Gurney Stubbs secretary.

Personal.—Drs. Alfred D. Kohn and Alexander L. Blackwood have been appointed members of the board of education. ——Dr. John B. Murphy and family leave for Europe July 12.

Unlicensed Practitioners Fined.—Mrs. L. Brunswick, Mrs. F. Kantz, Hanna K. Blomberg and H. H. Hill, charged with prac-

ticing medicine without licenses, are said to have been found guilty and fined $100 and costs each. None of the defendants appeared in court.

New Dispensary.—The Northwestern University Medical School is about to erect a dispensary on property on Calumet Avenue, north of Mercy Hospital, which was acquired by Dr. John B. Murphy for the institution and was conveyed by him to the university, June 26, for a consideration of $7,801.

Hospital News.—Jackson Park Sanitarium was opened for the season June 27. Addresses were made by Dr. W. Augustus Evans, commissioner of health, Dr. Alfred C. Cotton, superintendent of the sanitarium, and others.——The twenty-second season of the Daily News Fresh Air Fund Sanitarium, Lincoln Park, began June 29.——Iroquois Memorial Emergency Station No. 1 is to be opened at 87 Market Street by the Iroquois Memorial Association. The association is prepared to spend $25,000 in equipping the building, and it will be provided with everything deemed necessary. The first floor is to be an ambulance station; the second a dispensary, and on the third floor will be the operating room and beds for patients.

Danger from Flies.—The weekly bulletin warns that the common house fly should be kept out of homes and away from food, and the chances of avoiding diarrheal disturbances and typhoid fever this summer will be much better. All cases of typhoid fever and most cases of diarrheal disease are due to infection. The infection is present in human discharges; from these discharges it is conveyed into the mouths of others in several ways; but the common house fly is the commonest and most mischievous of all carriers. The greatest prevalence of the diarrheal diseases corresponds with the greatest prevalence of flies. Most typhoid infections also occur at this time. Flies may also be the conveyors of scarlet fever, diphtheria, tuberculosis and other infectious diseases. They walk over or feast on the infectious matter in a sick room and then go to a neighboring home and find their way to the food of other persons.

INDIANA.

Personal.—Dr. Charles C. Terry and family, South Bend, sailed for the Mediterranean June 20.——Dr. Charles K. Bruner, Greenfield, has been appointed local surgeon for the T. H., I. & E. Railway.——Dr. and Mrs. Xene Smith, Huntington, have returned from abroad.——Dr. E. Oscar Lindermuth, Indianapolis, is said to be ill with smallpox in the isolation hospital.

State Society Meeting.—At the fifty-ninth annual meeting of the Indiana State Medical Association, held in French Lick Springs, June 18 and 19, the following officers were elected: President, Dr. George D. Kahlo, French Lick; vice-presidents, Drs. Edward D. Freeman, Osgood; Charles H. McCully, Logansport, and Charles Chittick, Frankfort; secretary, Dr. Frederic C. Heath, Indianapolis (re-elected); treasurer, Dr. Albert E. Bulson, Jr., Fort Wayne, and delegates to the American Medical Association, Drs. William N. Wishard, Indianapolis; Edwin Walker, Evansville; Harry C. Sharp, Jeffersonville, and George W. Thompson, Winamac.

MARYLAND.

Baltimore.

Quarantine Raised.—The quarantine of the smallpox suspects at Poplar Heights, in the suburbs of Baltimore, has been raised.

Woods Club.—The members of the medical staff of the University Hospital have formed an out-of-door recreation club to be known as the "Woods Club." The requirement for membership is a "sincere love for the out of doors and old clothes."

New Infectious Diseases Hospital Ready.—It is announced that the new hospital for infectious diseases is completed and ready for occupancy. It is a simple one-story building, with large porches at either end. There are two wards for white and two for colored patients, accommodating thirty-two in all. There are four rooms for private cases. The building is on the ground of the City Almshouse.

Vital Statistics for June.—During the month there were 266 deaths of children under 5 years of age, 32.6 per cent. There were 86 deaths from intestinal diseases in children under 2 years of age. The total number of deaths was 816, and there were 735 births. Eighty persons were bitten by dogs; there were 20 fatal accidents; 11 persons attempted suicide, 2 were successful.

Personal.—Dr. James H. Bay, of the house staff of University Hospital, was operated on for appendicitis, June 27.——Dr. Daniel Z. Dunoth will spend the summer at White Sulphur Springs Va.——Dr. Leonard M. C. Parker has gone to Europe.——Dr. L. McLane Tiffany is at Magnolia, Mass.——Dr. H. Barton, Jr., will spend the rest of the summer at Newport.——Dr. Ira Remsen is at Prout's Neck, Maine.——Drs. Charles O'Donovan and G. Milton Linthicum have recently been added to the faculty of Baltimore Medical College.

New Buildings for Baltimore Medical College.—The Baltimore Medical College will shortly erect a large library and laboratory building on ground purchased last year. There are to be three lecture halls, with a seating capacity of 200 each, also chemical, physiologic, pathologic and physical laboratories and lecture and library rooms for the Baltimore law school, which will be affiliated with the college. The building will be of brick, four stories high, and will cost about $50,000. The members of the building committee are: Profs. G. Milton Linthicum, William E. Moseley, James M. H. Rowland and Samuel K. Merrick.

MASSACHUSETTS.

Hospital Acquires Property.—The Massachusetts General Hospital has acquired 595 square feet of land adjoining the hospital grounds.

Commencement.—At the annual commencement of Harvard Medical School, a class of 64 was graduated, and 12 members of the class received the degree of M.D. *cum laude*. The honorary degree of D.Sc., was conferred on Col. William C. Gorgas, Medical Corps, U. S. Army.

Medical Student Drowned.—The body of Reginald Sears James, a senior student in Harvard Medical School, who mysteriously disappeared several days before, was found in the Charles River May 27, and it is believed that while suffering from melancholia caused by worry over his studies, he committed suicide.

Floating Hospital.—The first trip of the Boston Floating Hospital was made July 1. The boat will make daily trips, including Sundays, up to September 15. During last season the total number of patients on all trips was 2,639, and there were 366 permanent patients, who stayed in the hospital an average of 70 days each.

Communicable Diseases.—There is said to be a great increase in typhoid fever in Fitchburg, where nine cases have been reported recently.——The Board of Health, Worcester, has traced the origin of thirteen cases of diphtheria to the distribution of milk by one dealer in Quinsigamond.——Diphtheria is reported still to be prevalent in Ware.

Reception to Revision Committee.—On May 23, the New England Branch of the American Pharmaceutical Association and the Boston Association of Retail Druggists tendered a reception to the revision committee of the U. S. Pharmacopeia, at which a number of prominent physicians of Boston were present as guests. Mention was made at this dinner of the great friendliness now existing between the professions of medicine and pharmacy.

Tuberculosis Camps.—The open-air camp provided by the Springfield Society for the Prevention of Tuberculosis is now arranged and in readiness for the care of patients.——Ground has been broken for the tuberculosis camp in Cambridge, for which an appropriation of $20,000 was recently made. The building will be one story in height, with two wings, each 25x50 feet, and the front will be made almost entirely of glass. Primarily this institution will be a day camp, in which patients will be instructed in hygiene and will receive other treatment. Later it is planned to build a hospital for the care of contagious diseases.

MICHIGAN.

Communicable Diseases.—There is said to be an epidemic of diphtheria of mild type in Holland.——At East Fremont there are said to be 10 or 12 cases of smallpox of mild type.

Degrees Conferred.—The University of Michigan, at its recent commencement, June 18, conferred the degree of M.A. on Dr. Walter Courtney, Brainerd, Minn., chief surgeon of the Northern Pacific Railroad; the degree of D.Sc. on Dr. Franklin P. Mall of Johns Hopkins University, and the degree of D.Sc., on Dr. William J. Mayo, Rochester, Minn. All thus honored were members of the medical class of 1883.

Personal.—Dr. Oscar C. Breitenbach, Escanaba, was elected president of the Lake Michigan Water Commission, May 27.——Dr. H. F. Thomas, surgeon, and J. N. Holcomb, assistant surgeon of the Soldiers' Home, Grand Rapids, have resigned.——Dr. Felix J. Przybylowski has succeeded Dr. Zigismund L.

Kadlubowski as city physician of Detroit.——Dr. James C. Johnson, city physician of Adrian, has resigned.——At the May meeting of the Gratiot County Medical Association, Dr. Stiles Kennedy, St. Louis, was the guest of honor, and was presented with a silver loving-cup, suitably inscribed.

MISSOURI.

Personal.—Dr. William C. Goodwin, Odessa, the oldest practitioner of Lafayette County, was the guest of honor at the May meeting of the Lafayette County Medical Society.——Dr. Herman E. Pearse, Kansas City, has sailed from Montreal for Europe.——Dr. Oscar M. Long, Harrisburg, who is alleged to have shot and seriously wounded a clergyman, December 16, after an altercation relative to the local option campaign, is said to have been found guilty at Columbia, June 23, and fined $100 and costs.

State Society Meeting.—At the fifty-first annual meeting of the Missouri State Medical Association, held in Springfield May 19-21, the following officers were elected: Dr. Alonzo R. Kieffer, St. Louis, president; Drs. Dexter B. Farnsworth, Springfield; William J. Frick, Kansas City; Joseph B. Norman, California; Charles H. Dixon, Holliday, and Marshall A. Smith, Gallatin, vice-presidents; Dr. Andrew W. McAlester, Jr., Kansas City, secretary, and Dr. J. Franklin Welch, Salisbury, treasurer. Dr. Robert H. Goodier, Hannibal, was elected orator on medicine, and Dr. Frank J. Lutz, St. Louis, orator on surgery. Dr. Elisha E. Gilmore, Adrian, was selected as chairman of the medical section; Dr. Franklin E. Murphy, Kansas City, vice-chairman, and Dr. William R. Patterson, Tipton, secretary; Dr. Paul Y. Tupper, St. Louis, chairman of the surgical section, and Dr. Willard Bartlett, St. Louis, secretary. A committee composed of Drs. Thompson, Kansas City, Tipton McLemore, Nevada, and Mitchell C. Shelton, Joplin, was appointed to organize an eye, ear and throat section of the association.

NEW YORK.

Personal.—Dr. Robert F. Sheehan, Buffalo, has been appointed a food inspector of the department of health.——Dr. De Witt Green, Buffalo, has resigned as district physician of the department of health.

University of Buffalo Acquires Property.—An arrangement has recently been effected by means of which the University of Buffalo has acquired from Erie County, New York, one hundred and four acres of land to be used for university purposes. The tract is splendidly located at the summit of the limestone ridge at the northern edge of the city, adjacent to the Country Club. The Medical Department of the University of Buffalo was founded in 1846, and three other professional schools have been organized since that time. The need for an academic department has long been felt and its organization now seems in a fair way to be accomplished. The land here mentioned will be devoted to that purpose.

NORTH CAROLINA.

State **Board of Examiners Elected.**—The following were elected by the state society as the board of medical examiners of the State of North Carolina for six years: Drs. James L. Nicholson, Richlands; Henry H. Dodson, Greensboro; Lewis B. McBrayer, Asheville; William W. Mackenzie, Salisbury; Benjamin K. Hays, Oxford; John C. Rodman, Washington, and John Bynum, Winston-Salem.

State Society Meeting.—At the fifty-fifth annual meeting of the Medical Society of the State of North Carolina, held in Winston-Salem June 16-18, the following officers were elected: President, Dr. Jacob F. Highsmith, Fayetteville, and vice-presidents, Drs. Chalmers M. Poole, Salisbury, and Daniel A. Dees, Bayboro. The society passed a resolution advising the board of examiners to revoke the license of any practicing physician who is found violating the prohibition law by promiscuously writing prescriptions for whisky. This is the result of the petition presented by the ministerial association of several towns of the state.

PENNSYLVANIA.

Bequest.—The will of the late John B. Roach bequeaths $5,000 in trust to the Chester Hospital.

Cocain Sellers Sentenced.—Eugene Fairfax and Lizzie Acy, colored, who were arrested by the city police of Harrisburg as the ring leaders in the cocain traffic, were fined and sentenced to six months in jail June 15.

Free Antitoxin.—According to a report of State Health Commissioner Dr. Dixon, from October, 1905, to December, 1907, the state distributed antitoxin for the treatment of 8,833 cases of diphtheria. Of this number, 7,926 patients were saved, only 807 cases resulting fatally. In addition, the state furnished antitoxin to immunize 6.184 persons. Of these, all but 53 were protected against the disease, and of the 53 who did contract the disease only 5 succumbed. The total cost of the antitoxin supplied these 15,017 persons was $40,826.25.

Philadelphia.

Commencement.—The annual commencement exercises of the University of Pennsylvania Department of Medicine were held June 19. The annual address to the graduating class was delivered by Dr. Edgar Smith, vice-provost of the university. A class of 143 was graduated.

Public Baths Opened.—On account of the excessive heat during the past week, the city's public baths were opened June 24. One new bath has been added, making a total of 19. The baths will remain open daily from 5 a. m. to 9 p. m., except Sunday, when they will close at 9 a. m.

Health Report.—The total number of deaths reported for the week ended June 27 was 500, including 274 males and 226 females, an increase of 97 over the previous week and of 51 over the corresponding week of last year. The principal causes of death were: Typhoid fever, 6; measles, 8; pertussis, 6; consumption, 53; cancer, 33; apoplexy, 15; heart disease, 33; acute respiratory disease, 37; enteritis, 63; hepatic cirrhosis, 5; appendicitis, 2; Bright's disease, 31; premature birth, 14; congenital debility, 13; suicide, 4; accidents, 15, and marasmus, 21. There were 115 cases of contagious diseases reported, with 9 deaths, as compared with 139 cases and 16 deaths in the preceding week.

Drop in Typhoid.—The lowest typhoid fever record since 1897 was reached during the first week of June. Only 25 cases were reported in that period, and this is the smallest number reported in any week in the history of the health department. Dr. A. C. Abbott, chief, stated that the reported cases in any one week since February 22 has not reached 100, and since May 16 the number has been below 50. In previous years the early spring weekly average was from 200 to 350 new cases. From January, 1908, to the present time there has been a decrease in typhoid fever of 66 per cent. as compared with the same period of last year. The extension of the filtered water area, it is believed, has influenced this decrease, but the number of cases in the unfiltered districts also shows a proportionate decrease.

Personal.—Dr. G. Oram Ring has returned from Mexico.——Dr. Morris B. Miller sailed for Europe June 12.——Dr. Ward Brinton had the degree of M.A. conferred on him by Washington and Jefferson College at the annual commencement exercises June 16.——Drs. Wharton Sinkler, Horatio C. Wood, John Marshall, Benjamin F. Stahl, William S. Wadsworth and Roland G. Curtin were elected to the board of directors of the general alumni association of the University of Pennsylvania, Department of Medicine, at the annual meeting June 16.——Dr. John M. Swan has been appointed secretary for the United States of the Section in Tropical Medicine of the fifth Pan-American Medical Congress.——Drs. Peter N. K. Schwenk, David G. Metheny, Thomas S. K. Morton, Morris Longstreth and Elwood Matlack have sailed for Europe.——Dr. William L. Rodman has resigned the chair of surgery in the Woman's Medical College of Pennsylvania, the resignation to take effect at once.

WASHINGTON.

Garbage Collection.—Seattle has appropriated $65,000 for furnishing a garbage collection and incinerating system to take the place of the personal collection of garbage by private individuals.

Communicable Diseases.—A case of smallpox is reported on board the U. S. steamship *Kentucky* at Bremerton.—At Prosser ten families are quarantined on account of smallpox.——A large number of cases of diphtheria is reported at Rock Cut and in Stevens County. For a time it was confined to Indians, but is now spreading among the white settlers.

Milk Statistics to Be Published.—The daily newspapers of Seattle will be furnished with full data relative to dairies disposing of milk in the city, the product of which falls below standard of the ordinance. A list will also be published of the establishments maintaining a high standard so that the public may have information on this most important subject.

Alleged Illegal Practitioner Discharged.—In the case of Mrs. Linda B. Hazard, Seattle, charged with practicing medicine without a license, the charge being based on the fact that Mrs. Hazard displayed a sign, "Doctor," on her door contrary to the statute governing and defining physicians and surgeons,

the court held that section of the statute to be invalid, as it infringes on the personal liberties of the individual. There was no evidence that Mrs. Hazard wrote prescriptions or practiced medicine.

GENERAL.

Medical Examiners Meet.—At the ninth annual meeting of the American Association of Medical Examiners, Dr. Frank E. Allard, Boston, was elected president; Drs. Liston H. Montgomery, Chicago; William J. Means, Columbus, Ohio, and E. Olin Kinne, Syracuse, N. Y., vice-presidents, and J. C. Moynihan, New York City, secretary-treasurer (re-elected).

Officers of Pension Examining Surgeons.—At the annual meeting of the National Association of United States Pension Examining Surgeons, held in Chicago, June 1, the following officers were elected: President, Dr. Henry B. Walter, Harrisburg, Pa.; vice-presidents, Drs. Allen W. Gray, Chicago; James B. Duncan, Bedford, Ind.; Edwin Bentley, Little Rock, Ark., and Franklin R. Garlock, Racine, Wis., vice-presidents; Dr. Philip Y. Eisenberg, Norristown, Pa., secretary, and Dr. Charles H. Glidden, Little Falls, N. Y., treasurer.

Lake Michigan Water Commission.—The Lake Michigan Water Commission was organized recently at Grand Rapids for the purpose of the prevention of pollution of Lake Michigan by legislation prohibiting the flow of sewage into the lake. The commission is composed of surgeons from Michigan, Wisconsin, and Illinois, and the War Department, and Public Health and Marine-Hospital Service. The following plans were agreed on at the recent annual meeting of the commission to further their work: To gather further information as to the existing conditions of the water supply; to study conditions from a hygienic standpoint; to discover whether or not Lake Michigan is polluted, with special reference to conditions along the shores; to analyze the present condition of the lake water with relation to depth; to study the problem of non-sewered towns, both those using lake water and those getting their supply from wells, and, finally, the pollution of streams emptying into the lake.

Fourth Congress of the French-Speaking Physicians of North America.—This medical congress is to be one of the features of the widely advertised celebration of the three hundredth anniversary of the founding of the city of Quebec. The congress will convene July 20 to 22, with Prof. A. Simard in the chair. Dr. S. A. Knopf, New York, has been appointed one of the twelve honorary presidents of the congress, the only one from this side the Canada boundary, with Pozzi and Triboulet, of Paris. The subjects to be discussed are: "Hygiene in Education;" "Infection of the Biliary Passages," and "Tuberculosis of the Kidney." The *Bulletin Médical de Québec* states that the Canadian railroads and steamboat lines allow half rates between July 18 and August 3 to all who apply for a ticket to Quebec, and the railroads in Eastern New England are said to have agreed to a similar reduction. Lodgings have been reserved for members of the congress at from $2 to $5 a day, or in the "Tented City" for less. The St. Louis Club will also throw open its doors to the members during the anniversary festivities. Dr. W. Verge is president of the committee on accommodations. Besides the congress badge the committee expects to present each member with a souvenir plaque. The meetings will be held in the historic Laval University. Dr. Knopf is to deliver an address entitled, "Le Sanatorium, le Dispensaire et l'Hôpital Spécial pour le Traitement des Tuberculeux." A notable delegation from France will be present at the congress.

FOREIGN.

Hernia Institute at Milan.—The Bassini Institute at Milan, which is devoted exclusively to the free treatment of hernia in the poor, has recently received some comparatively large donations.

The International Bureau of Public Health.—The Italian government has appropriated $3,000 as its annual share in the expenses of the central office, which the International Public Health Conference last December agreed to organize, with headquarters at Paris.

Cannizzaro Chemistry Prize.—The Academy of Sciences at Rome, Italy, announces the endowment of a prize of $2,000 to be awarded perpetually every two years for the best work on pure and applied chemistry with special regard to physical and general chemistry. The prize is open to the world.

Sixteenth International Medical Congress.—A number of copies of the preliminary program, regulations, application blanks and various notices in regard to the Sixteenth International Medical Congress have been received at this office and are at the disposal of those interested. As already announced, this congress is to be held at Budapest, Aug. 29, 1909, and extensive preparations are being made to insure its success. Dr. J. H. Musser, 1929 Chestnut Street, Philadelphia, is the chairman of the national committee for the United States, Landouzy for France, Waldeyer for Germany, Pavy for Great Britain and Baccelli for Italy. An international prize of $200 has been offered by the Hungarian government for the best work on the Etiology of Trachoma, manuscript or published for the first time in 1907 or 1908, in any of the congress languages. Works sent in to compete for the prize must be in the hands of the minister of the interior by Dec. 31, 1908. (Address Belügyministerium, Budapest, Hungary.) The International Committe of Travel for Medical Study will also hold its general assembly at Budapest during the congress. There are to be 21 sections, with a subsection for orthopedics. The section for otology is practically identical with the Eighth International Congress for Otology. The congress fee of $5 may be sent to the treasurer of the congress. (Address M. le Trésorier du XVIe Congrès International de Médecine, Esterhazy-utcza 7, Budapest. VIII.) The membership of the American committee was given in THE JOURNAL, June 13, page 2008, with other details in respect to the congress.

Plague in South America.—Consul Manning reports that the presence of bubonic plague in La Guaira and other ports of Venezuela has caused a general awakening in Cartagena to the necessity of proper precautions to prevent introduction of the disease. With this object the authorities of Cartagena and the commercial houses have taken up the cause of sanitation and are acting as rapidly and with as much vigor as possible. Under the general direction of the sanitary inspector of ports the municipality has organized various commissions, charged with the carrying out of measures. A sanitary police corps has been organized, house-to-house inspection is being made, and all refuse and trash are carted away and destroyed. A temporary garbage crematory has been erected, where this class of waste from the city is being burned. The instructions to the sanitary police are being carried out as fully as possible. Lazarettoes will be provided outside the zone of danger from the infection reaching the city to which any suspicious cases are to be taken, should such appear, and it is the intention of the health authorities to isolate any future cases of yellow fever or smallpox. Of the former, no cases have appeared here since June, 1907, and no smallpox has been reported in the city since then. For further protection against plague a campaign against rats, mice and bats will be necessary. The latter are very plentiful, inhabiting the underground passages of the old forts Castillo de San Felipe, San Sebastian and others, as well as unoccupied houses. With a view to the destruction of rodents the use of rat traps, rat poisons and other plans are being adopted as rapidly as possible.

BERLIN LETTER.

(*From Our Regular Correspondent.*)

BERLIN, June 20, 1908.

Economic Position of German Physicians.

Since I gave, in my former letter, an account of the preliminary and postgraduate education of physicians in Germany, I will add some observations on the important factor, in the professional life of medical men, of their economic mode of life. For the last decade there has been much complaint over the material position of German physicians. In the first place it must be borne in mind that from various causes all of the learned professions in Germany (and possibly in many other countries) have, as the saying goes here, not been lying on beds of roses, and the medical profession is no exception. One common cause for the material depression of all the learned professions is their overcrowding. The tendency to enter the academic callings has been a strong one for decades in Germany, and as the increase of population does not keep pace with it, the prospects for adequately supporting the great mass of the members of the learned professions have been correspondingly poorer.

In order to appreciate these conditions in the medical profession, it is only necessary to point out, that in the year 1897, according to the Imperial Medical Calendar, there were in the German empire 4.75 physicians for 10,000 inhabitants. In 1907, on the other hand, there were 5.25. In absolute figures there had been added more than 6,000 to the number of physicians in Germany. Aside from the overcrowding of

the profession, two factors have been of special importance in producing a deterioration of the economic condition: social legislation, and the continuous spread of quackery. Since 1883 the great mass of the working population have been insured by an imperial law against sickness, accidents, and disability. The insurance against sickness is of most importance to the medical profession. By this law a large portion of the population of Germany is excluded from the private practice of physicians; the insured have a right to free medical treatment and the physicians are paid by the local medical insurance clubs, the *Krankenkassen*. The economic significance of this organization for the medical profession may be shown by the following figures: In 1906 there were about 23,000 such societies, which included 11,500,000 members. The number of cases of illness which involved inability to labor amounted to 4,500,000, with about 87,500,000 days of illness. The regular income of all the societies amounted to 293,000,000 marks ($70,320,000) the regular expenses, so far as concerns the cost of disease, were 241,000,000 marks ($57,840,000). Of these expenses of sickness 57,250,000 marks ($8,587,500) paid the fees of physicians. From these figures it may easily be understood what a powerful factor the insurance clubs are in affecting the economic situation of German physicians and also to what extent the German physician must be dependent on the insurance organization. In fact this dependency became especially acute in the first year of the social legislation, especially from an ethical standpoint, inasmuch as the managers, being aware of their power, made their right of mastery effective and looked on the physicians as their hirelings. In their efforts to obtain positions in the lodges physicians humbled themselves in an unworthy manner. Competition developed among them, from which corruption was not lacking.

As usually happens, every extreme finally provokes a reaction, and so the evil conditions described led to a combination among the physicians for mutual assistance which had for its aim to shake off the yoke imposed on them by the managers. In Berlin an agitation took its rise which had for its aim the introduction of the so-called "free choice of physicians" for all the sick benefit societies. While formerly each had a number of permanently employed, so-called "fixed" physicians, who furnished medical treatment to the sick members for a definite yearly salary, and who were appointed by the management, it was proposed that all the physicians of a city, under certain conditions, should be permitted to participate in the treatment of all the members of the society. The funds which were at the disposal of each society for the treatment of the sick (limited in proportion to the revenue) should be divided among all the physicians who had treated the sick, according to a definite uniform tariff. This proposal, which makes the physicians independent of the management and removes the monopoly of the permanently appointed "insurance physicians" in favor of the entire medical profession, has won the sympathies of the great majority of medical men. Most German physicians are supporters of the so-called "free choice of physicians." The opponents among medical men are naturally those who are in possession of the fixed medical insurance positions, while outside the profession the opposition is greatest from the directors of the insurance societies. The latter are fighting the "free choice of physician" most vigorously under the pretext that under this régime the cost of treating the sick would be too high, both in itself and in relation to the funds set apart for the purpose. The chief objection, however, is the unacknowledged motive that under the "free choice of physicians," medical men would be less under the control of the directors of the insurance societies.

In this struggle there have been severe conflicts between the physicians and the societies. The entire medical profession of one city were excluded from all part in the treatment of the members of the society, and on the other hand, the physicians of another city struck and refused to treat the members. The government has been obliged to intervene repeatedly; lawsuits have been instituted, etc. In view of this continuous strife from which both parties have suffered, it must be the endeavor of the government to find some means of settlement. The physicians some years ago organized themselves into the so-called Leipsic League for the Protection of the Economic Interests of Physicians. This embraced in 1907 about 20,000 physicians, or two-thirds of the entire German medical profession. The members of this association have of late years at their medical meetings repeatedly passed resolutions in which the legal authorization of the "free choice of physicians" was demanded, and it seems impossible that this demand shall be ignored much longer. This demand is now being pressed the more earnestly by physicans because by the contemplated reform of the sick insurance legislation the number of those who belong to the *Krankenkassen* will be very considerably increased. Under the former provision of the law those must insure themselves against sickness who possess an annual income not above 2,000 marks ($480), the proposed law will include those whose income is not above 3,000 marks ($750). At present 36 per cent. of the inhabitants belong to the insurance societies, but it has been estimated that in the kingdom of Saxony after the innovation just mentioned goes into effect, 92 per cent. of the entire populace will be members. In this way the free private practice of the physician will be still more contracted than heretofore, and the necessity of physicians securing conditions as favorable as possible for the treatment of the sick in the *Krankenkassen* is so much the more pressing. A conference has been called by the Imperial Office of the Interior for June 11, at which the question of the free choice of physicians is to be discussed by the supporters of both views with the participation of the representatives of the government. With reference to the results of this conference I will write later.

LONDON LETTER.

(From Our Regular Correspondent.)

LONDON, June 20, 1908.

Coroner Troutbeck and the Profession.

The conflict between Coroner Troutbeck and the medical profession described in the last letter is attracting widespread attention, both in medical and lay circles. In the columns of the *Times* the coroner and Sir Victor Horsley wage an acrimonious controversy. Mr. Troutbeck's view that if a patient dies during or after an operation the surgeon should be held responsible until he has cleared himself before a coroner's jury is strongly repudiated by the profession. A coroner's court is no fit tribunal to decide whether an operation should have been performed or not, or to criticize the skill of the operator. If a surgeon in the often difficult and delicate problem of deciding whether or not an operation is desirable is to have the possibility confronting him of having his action reviewed by such an incompetent tribunal his judgment would be disturbed, and in desperate cases patients would be liable to lose the possibility of benefit from operation. Mr. Troutbeck holds that if a death is accelerated by an operation that fact brings it within the scope of the Coroner's Act which requires that when a person is reasonably suspected of dying a violent or unnatural death an inquest should be held. But in the *Times* Dr. Shearer very well argues that a death from disease under treatment *secundum artem* is not *contra naturam*. Further, if an inquest should be held on a patient who dies after operation, for the same reason an inquest ought to be held on a patient who dies under medical treatment, for there is the same possibility that the treatment may have accelerated death. The whole question, which is of such fundamental importance to the profession, is under consideration by the British Medical Association.

A Notable Medical Centenarian.

On July 1, Sir Henry Alfred Pitman, for over thirty years registrar of the Royal College of Physicians, will attain his hundredth birthday. To mark the event some of his old professional friends will visit his residence at Enfield and present him with a piece of plate. Despite his age, Sir Henry enjoys excellent health; in fact the only defect from which he suffers is impaired eyesight. When in practice he spurned a carriage and visited his patients on foot.

Healthy London.

During the third week in June the death rate in London was the lowest on record. It was only 10.8 per 1,000. The rates of the previous weeks were 11, 11.6 and 11.7.

The Entente Médicale.

The *entente cordiale* between England and France in recent years has had as one of its manifestations more intimate relations between the medical professions of the two countries, which has taken as one of its forms visits in a body of English physicians to Paris and of French physicians to London. A short time ago Sir Dyce Duckworth delivered a lecture in Paris to the Faculty of Medicine. Now in return Professor Raymond, the successor of Charcot at the famous Salpêtrière Hospital will deliver a lecture at the Royal College of Physicians on *Les Maladies dites Familiales*. He will also hold a clinic at Guy's Hospital, where he will demonstrate in two or three nervous cases the methods he employs at the Salpêtrière

Pharmacology

THE BROADER AIMS OF THE COUNCIL ON PHARMACY AND CHEMISTRY.

TORALD SOLLMANN, M.D.
Member of the Council, Professor of Pharmacology and Materia Medica at the Medical Department of Western Reserve University.
CLEVELAND, OHIO.

(*Continued from page 52.*)

XVI. PROPRIETARY RIGHTS.

It is almost useless to discuss the purely academic question, whether the inventor of a medicinal agent should hold his discovery as a monopoly, or whether he should follow the example of the medical profession and renounce personal pecuniary reward. We may each have our personal opinions, but the fact remains that the chemical or pharmaceutical inventor is legally entitled to this monopoly; and he is generally disposed to insist on his legal rights. Indeed, by shrewdly utilizing certain technicalities, he can and does render this monopoly more complete and more permanent than was ever contemplated in the theory of the patent laws. The protection is so far-reaching that it checks further improvement, instead of fostering it, as theoretically it should do.

If the new remedy is really unique and valuable, if it is a genuine discovery and an advance, then it would be ungracious to begrudge the discoverer a reasonable reward in the way of protection, so long as this does not place a disproportionate burden on the public. Indeed, this proprietary protection may be to the best interest of the public, in those individual cases in which the discoverer employs a fair share of his profits in further research, to enable him to exercise and extend his inventive talent.

It is a little more irritating if the extra profit goes almost entirely to some large chemical corporation, which has forced the real discoverer to "sell out" for a mere pittance. But even in this case, there may be a fair value given in return. For instance, the expense of quickly introducing a valuable therapeutic agent is considerable, and the profits must be sufficiently large to pay for the advertisement. Right here, however, we should remember that the greatest discoveries require the smallest outlay for advertising. One of the objectionable features to proprietorship is that the users of a valuable invention must pay the cost of advertising the worthless invention.

ORIGINAL AND PSEUDO-ORIGINAL PROPRIETARIES.

On the whole, however, no one quarrels very seriously with the protection accorded to really original and valuable discoveries. It is otherwise with products which are not essentially original—and these constitute the bulk of the proprietary stock. Many "synthetics" even, are mere imitations of other successful products, and involve little more ingenuity than the placing of quinin in capsules. In some cases, all pretext of originality is dispensed with, as in the numerous proprietary hexamethylen tetramins or phenolphthaleins. One is sometimes tempted to wish that the patent laws were a little more effective in preventing this kind of discoveries. The worst examples, however, are the "proprietary mixtures."

By what right can the exploiters of Bromidia, Listerine, Glycothymoline and all the others, claim the protection due to discoverers? What is there original about these mixtures? So little that they would have no standing in the patent office, and their promoters are obliged to resort to the subterfuge of copyrighting a coined name, or to some similar expedient; or to the favorite "patent medicine" device of secrecy, partial or complete. Secrecy, in one form or another, is almost indispensable for the effective control of these specialties, which are not "discoveries" in any sense of the word.

The only legitimate claim of proprietary mixtures to protection and professional recognition would be by pharmaceutical superiority—by quality. If they really possess this superiority, it can be protected by the same methods that are used by the manufacturers of superior official products. These have not found it necessary to patent, copyright, or fancy-name their ether, or ergot, or quinin. A physician can prescribe any make of these official products which he believes superior, with very little fear that other makes will be substituted.

THE PSYCHIC VALUE OF A PROTECTED NAME.

The fact is, the manufacturers of the pharmaceutical "specialty" mixtures lay but small stress on the superior pharmaceutical quality of their goods—sometimes for good and sufficient reasons. They adopt these "protective" names for a very different reason, namely, that they may safely make illegitimate therapeutic statements. It is a puzzling psychologic problem, but it appears to be a fact, that it is easy to persuade the physician that the same substance acts differently when prescribed as "antikamnia" and as "acetanilidum;" while it would take much more argument to persuade him that A's make of acetanilid is superior to B's brand.

Proprietary rights are expensive luxuries to the public; some one must pay from two to ten times the ordinary profit to the manufacturer. But this is the smallest of their evils. Proprietorship, in addition to the viciousness of secrecy, always tends to extravagant therapeutic and other false claims, dangers which can only be avoided when the proprietor himself realizes the responsibilities as well as the profits of proprietorship. Otherwise, proprietary rights are inimical to the true interests of therapeutics. Proprietorship may be condoned in really new and meritorious discoveries, as a necessary and not unmixed evil; it has no excuse in imitations and mixtures. In these it is maintained merely and solely by the tolerance of physicians, who thus foster the abuses to which it gives rise.

(*To be continued.*)

DIASTASE FERMENTS.

Report of an Examination of the Diastase Ferments by the Council on Pharmacy and Chemistry.

A subcommittee makes the following report to the Council with the recommendation that it be published:

Among medicinal agents which may be classed as legitimate pharmaceutical preparations few are more widely advertised than are the starch-digesting ferments, the diastases. Along with a number of very good preparations there are several for which grossly exaggerated claims are made, and which are advertised to the medical profession in such a manner as to lead to distrust. Those which have merit have not always been marketed by methods which are wholly free from criticism. In several cases the claims made are more than can be substantiated by actual tests.

There has always been some obscurity in the method of reporting the digesting value of these diastases, and just what is meant by starch conversion or sugar formation is not always clear. In other words, the claims of the manufacturers are frequently stated in terms which are too general.

To be of value statements regarding the digesting power of the diastases should be based on standard and uniform methods of testing. But manufacturers have followed different methods of examination, which naturally makes a fair comparison of products difficult, and in some cases impossible, for any one not conversant with the methods of analysis. Recognizing the importance of uniformity in such work the subcommittee has had a large number of comparative tests carried out on the more important products of this class, employing several methods of analysis. In practice the diastatic action may be measured in terms of malt sugar formed from an excess of starch in a given time, or by the conversion of the starch to a point where the test with iodin shows the disappearance of the blue color, or the disappearance of all color. Results by these three methods are not directly comparable, although there must be some relation between them. Our first experiments were directed toward the clearing up of this point. These experiments were carried out largely by Mr. W. A. Johnson and the most important of them are given in detail in a paper which appears in the May number of the *Journal of the American Chemical Society*. From his numerous tests Mr. Johnson concluded that the best practical comparison may be made by carrying each digestion to the colorless end point, and in his paper certain suggestions are made as to the best methods of conducting the tests. These will be referred to below.

The following table contains the results obtained with a number of commercial products, when examined in this way, the digestions being continued through a period of ten minutes, at a thermostat temperature of 40 C. in all cases. All the products here examined came from the manufacturers, and the results were confirmed by tests on similar products bought in wholesale drug houses. The results are expressed in four ways for comparison as follows:

A.—Parts of 100 % starch digested to colorless endpoint in ten minutes.
B.—Parts of 92 % starch digested to colorless endpoint in ten minutes.
C.—Parts of 85 % starch digested to colorless end point in ten minutes.
D.—Parts of 85 % starch digested to loss of blue iodin reaction in ten minutes.

	A.	B.	C.	D.
Holadin	102.1	111.0	120.0	171.0
Taka Diastase	16.0	17.4	18.82	26.0
Taka Diastase Liquid.	0.38	0.41	0.45	0.61
Panase	113.0	123.0	133.0	203.0
Panase Essence	3.6	3.91	4.23	6.1
Vera Diastase Essence.	4.2	4.55	5.0	6.7
Diazyme Essence.....	6.12	6.66	7.14	10.3
Diazyme Glycerole....	6.12	6.66	7.14	10.3
Maltine, Plain	2.30	2.50	2.71	....
Maltzyme	2.87	3.12	3.37	....
Trommer's Extract of Malt, plain	0.65	0.71	0.77	....
Trommer's Extract with Cod Liver Oil.....	0.38	0.41	0.44	....

The blank spaces in the fourth column of figures indicate that no tests were satisfactorily completed here to show the conversion to loss of blue color. In fact, with highly colored mixtures this test is not as easily made as the other.

A comparison of the results given in the table with the statements which appear in the manufacturers' circulars, etc., show that the digestive values are all lower than claimed, if we base our comparison on the colorless endpoint reaction, and anhydrous starch conversion. If, however, we carry the digestion merely to the loss of blue color, which seems to be the case in some of the tests frequently cited, and employ starch with an average water content of about 15 per cent., a very different status must be reported. In this manner of reporting results five of the preparations show even more than the claimed values, but the method should not be tolerated for obvious reasons. The results actually found should always be calculated to anhydrous starch for reporting.

The discrepancies between the values claimed for Holadin, Diazyme Essence and Diazyme Glycerole and those actually found in our tests are not very great.

While one part of Holadin by the firm's method is stated to digest 135 parts of starch to the practically colorless endpoint, column C shows that by the method employed in these experiments only 120 parts of 85 per cent. starch were digested to the colorless endpoint. Similarly, while for Diazyme Essence and Diazyme Glycerole it is stated that 1 c.c. will digest 8 gm. "dry" starch to the colorless endpoint, the results given in the table above show that one part digested 6.12 parts of 100 per cent. starch to the colorless endpoint. This is equivalent to 7.14 parts 85 per cent. starch, the kind referred to by the manufacturer.

The claims made for Panase are somewhat misleading and conflicting. In a recent circular issued by the manufacturers a statement is made to the effect that one part of Panase "is capable of digesting at least 200 times its weight of starch in 10 minutes," while in another part of the same circular the complete conversion of 200 parts of starch into sugars is claimed as the work of 1 part of Panase. This claim is certainly wrong, as there is a wide difference between the two kinds of reactions. The figures in the table are sufficiently clear on this point, and suggest a proper modification of the claim to agree with the facts.

The widest discrepancy between the values as claimed by the manufacturer and those found by actual tests seems to be shown in the case of Taka Diastase. The liquid preparation has been tested a number of times in different samples and has always been found weak. Some samples, in fact, were quite inert. This ferment appears to lose strength very rapidly in solution, as the manufacturers now concede. The stability of the solid product is also far from satisfactory, and appears to be less than that of the ferment as marketed some years ago. The two samples examined recently were weak.

From a number of experiments made it appears that the stability of the diastase preparations from the pancreas is greater. In two tests of the Holadin, made some months apart, no appreciable change was noticed. The same thing is true of Panase and the earlier product of the same firm, Vera Diastase. But in the liquid form these preparations, like the Taka Diastase, seem to undergo some alteration in converting power, as the figures above, and others, suggest. Of the samples reported here the Vera Diastase essence was obtained fresh and examined at once, while the Panase Essence was on hand some time before the tests were made. According to the statement on the label the latter should be the stronger, but the reverse is the case. The Panase Essence seems to convert less than is claimed for it, while the Vera Diastase Essence converts more, if we consider 85 per cent. starch and digestion to loss of blue color merely, as satisfactory conditions of the test. It is possible that the somewhat greater age of the Panase Essence may have some bearing on the result.

The two Diazyme preparations appear to be stable, as far as practical requirements are concerned. We have examined the contents of the same bottles of these products at periods three months apart, and found no change in the starch-converting power. The claims for the numerical value of the diastatic activity and also for the stability which are made for these liquid preparations seem to be borne out by the facts as observed.

For the other liquid preparations, Maltine, Trommer's Extract, Plain and Trommer's Extract with Cod Liver Oil, there are no exact claims as to the digestive power. For Maltzyme, it is claimed that 1 gm. has the power to produce from starch, in 30 minutes, at 37.8 degrees C., 6 gm. maltose. They contain large quantities of the products of enzyme digestion, and have relatively low residual digestive value. They should be classed among the so-called medicinal foods, rather than as agents of digestion.

In the experiments carried out by Mr. Johnson, referred to above, sugar determinations were made also, and these showed a close agreement with the starch conversion, carried to the colorless endpoint. In making the tests for the sugar formation advantage was taken of the results of the other tests, and enough ferment was weighed out in each case to effect the hydrolysis of one gram of anhydrous starch to the colorless endpoint in ten minutes. A series of tests was made on each substance with the same weight of ferment and starch paste and at the end of 10, 30, 60, 120 and 180 minutes a flask containing the mixture was removed from the thermostat, and the amount of sugar formed, calculated as maltose, was determined. On removing each flask from the thermostat further action was always checked by immediate boiling. The amount of sugar formed at the end of ten minutes was essentially the same in all the samples tested, which included the first eight of the table above. For the gram of anhydrous starch, made up to a 2 per cent. paste, the maltose formed varied between 611 and 635 milligrams, which agrees very well with the usual findings for diastase digestion, under like conditions. There are many such results in the scientific literature.

In the longer periods, however, the amount of sugar formed by the Taka Diastase increased somewhat more rapidly than was the case with the other ferments, and the results of the determination after 180 minutes pointed to the evident conversion of some of the maltose into glucose. The mean value of the maltose formed by the other ferments in this time was about 860 milligrams, with variations from 855 to 872 milligrams, while for the Taka Diastase it was over one gram. But to secure these close results it must be remembered that very different amounts of the several ferments had to be taken at the start; that is, for the weaker digestants more, and for the stronger less was weighed out. The amounts taken varied inversely as their starch digesting activity, as shown by the first line of tests.

These relations may be illustrated by the figures in the following table, in which the first column gives the name of the substance, the second the number of milligrams actually required to convert 1 gram of starch to the colorless end-point in 10 minutes, and the third the weight of maltose formed in this time. The ferment substances were suspended in water and the proper volume was measured out to give the calculated weight. The sugar was found by titration with standard Fehling solution, and is calculated as pure maltose, proper allowance being made for the dilution of the titrated solution. The sugar amounts found under these conditions are essentially the same, but in producing the sugar 8.85 milligrams of Panase go as far as 9.79 milligrams of Holadin, 62.5 milligrams of Taka Diastase, 163.4 milligrams of the Diazyme liquids or 238.1 milligrams of the Vera Diastase Essence. In making comparisons by the table the fact must not be overlooked that the three preparations there last named are in solution, while the others are solids

TABLE OF SUGAR FORMATION IN 10 MINUTES.

Column A gives the weight of ferment required in each case. Column B gives the weight of sugar formed in each case.

	A.	B.
Panase	8.85	622 mg.
Holadin	9.79	634 mg.
Taka Diastase	62.5	611 mg.
Diazyme Essence	163.4	633 mg.
Diazyme Glycerole	163.4	635 mg.
Vera Diastase Essence	238.1	630 mg.

These results, which have been obtained many times in repeating the tests, show that the starch conversion to the colorless endpoint, which is more easily and quickly carried out than is the sugar determination, gives a practically useful measure of the ferment activity, and a measure which bears a close relation to that of maltose formation. We, therefore, recommend the process for all the routine examinations of this nature which have to be made in the testing of the diastase ferments. As is explained in the article by Mr. Johnson, the process here employed was first suggested by Roberts for the examination of ferments of animal origin, and was later modified by Junck and by Francis, and applied to the ferments of vegetable origin. In our laboratory it has been submitted to critical revision with the object of securing greater accuracy through a fuller specification of details of manipulation. The most important points of the process are these, which are presented as easily and practically workable:

1. A clean grade of potato starch is thoroughly washed, first by decantation and then on a Buchner funnel. It is carefully dried at a low temperature, and finally at a higher temperature to a moisture content of about 10 per cent., the exact moisture content to be determined in a separate experiment.

2. For the actual tests about 22 grams of the starch is mixed with 100 c.c. of cold distilled water to make a uniform cream and then poured into 800 c.c. of boiling distilled water. The boiling is continued through ten minutes, and then enough water is added to make the actual starch content (anhydrous) exactly 2 per cent. by weight. For each test quantities of exactly 50 grams of the paste are weighed into a series of 250 c.c. flasks, which are clamped in a large water-bath kept at a temperature of 40 degrees.

3. The iodin test solution is made by dissolving 2 grams of iodin and 4 grams of potassium iodid in 250 c.c. of distilled water; 2 c.c. of this solution is then diluted with pure water to make 1,000 c.c.

4. In making up the diastase solution the operator must be guided by the results of a few preliminary experiments in each case. For liquid malt extracts, for example, 10 c.c. diluted to 100 c.c. will generally be a proper strength, while in the examination of the dry preparations on the market 200 to 500 milligrams, dissolved or suspended in 100 c.c. of distilled water will usually answer.

5. These solutions are used in this way: Small definite volumes of the dilutions are added to the flasks containing the starch paste in the thermostat, and with the least possible loss of time. The mixtures are well shaken. The volumes added may be as follows, but all diluted to that of the largest volume before mixing: 1 c.c., 2 c.c., 3 c.c., 4 c.c., 5 c.c., 6 c.c. In about eight minutes tests are begun by removing volumes of 5 drops from each digesting mixture by a pipette and adding this to 5 c.c. of the dilute iodin solution in a clear white test-tube standing over white paper. It is best to have a row of these tubes mounted to receive the liquids to be tested. If at the end of ten minutes drops from one of the flasks fail to give the iodin reaction we are ready for a second and more accurate test. Weigh out now 100 grams of the paste into each of six flasks, and, assuming that the endpoint in the first test was found between 4 and 5 c.c., add accurately to the six flasks these volumes of the diastase solution: 8 c.c., 8.4 c.c., 8.8 c.c., 9.2 c.c., 9.6 c.c. and 10 c.c. These volumes should all stand ready and all diluted to 10 c.c, so that they may be poured into the starch and shaken up without delay. They should also have the normal thermostat temperature of 40°, which precaution should be observed with the mixtures added in the first test. The tests with the iodin solution are repeated as in the first trial, and new limits are found between which the exact value must lie. For example, at the expiration of ten minutes the paste to which 8.8 c.c. of the diastase solution is added may show a faint yellowish dextrin color, while that with 9.2 is colorless. We may go further and try a series of new dilutions, but practically it is not necessary. In fact, we can not carry our readings to a much finer degree of accuracy, because of the difficulty of distinguishing between the effects of dilutions so near together, in many cases. In a case like the above illustration it is sufficient to take the mean of the last named dilutions, and calculate the results to the basis of one part of ferment and the starch converted by it.

6. We have recommended potato starch because it is possible to obtain it in a satisfactory condition of purity. The commercial corn starch, even after washing, does not appear to be suitable for the purpose. On microscopic examination the potato starch granules must appear clean and sharp.

The working method is seen to be simple, and if all the commercial diastase ferments are tested in this way their practical value may be easily compared. Until something better is proposed we believe the scheme as outlined may be safely followed, and that it will be perfectly fair to all concerned.

The above report was adopted by the Council, with the recommendation that before publication it should be submitted to the manufacturers whose products had been examined. The replies were reported to the Council by the subcommittee, and the following supplemental report was submitted to the Council and adopted:

This report has been submitted to the manufacturers of all of the articles described and opportunity given them to make any comment or criticism they saw fit to make. As might be expected, each firm was desirous of changing in some respect the wording of the report so far as it refers to the firm's products, but a careful consideration of these replies does not warrant the subcommittee in admitting the justness of any of the claims made.

Parke, Davis & Co. state that in testing their product, Taka Diastase, the reaction should be carried to the loss of blue color only, and claim that to digest to the loss of all color would work to their ferment "a very grave injustice." They say that "Taka-Diastase is recommended, not for the rapidity with which it converts starch into maltose and dextrose, but rather for its usefulness in carrying cooked starch through the preliminary stages of digestion or hydrolysis with remarkable rapidity." The subcommittee fails to see the force of this argument, since what is desired in a diastase is conversion of starch into sugar. Besides this, Taka Diastase does not appear to be any more rapid in the preliminary stages than are some of the others, and in the advertising literature it is praised for its power of sugar formation, as are all the others.

In the comments offered by Frederick Stearns & Co. objection is made to the passage in the report in which we point out the discrepancy between the digestion of 200 parts by weight of starch in ten minutes and the conversion of 200 parts of starch into sugars. The firm promises to correct this discrepancy, which should have been done long ago.

Fairchild Bros. & Foster object most strenuously to the position given Holadin in the table, and insist that by *their* method of testing, the product has a higher value than we give it. This, no doubt, is true, but the subcommittee is not concerned with the firm's method of testing, and must be allowed to employ its own, for the reasons pointed out in the report. The object is in part comparison, and for this uniformity of methods is necessary. In this connection it should be noted that in the past the firm has strongly favored the adoption of a uniform method of testing diastase products.

The manufacturers of Maltzyme write in a somewhat indefinite way of their disappointment in the findings of the report, but the letter calls for no special comment.

W. A. PUCKNER, Secretary.

INGLUVIN.

Report of the Council on Pharmacy and Chemistry.

A subcommittee of the Council reported that unwarranted claims and misrepresentation were made for Ingluvin by its manufacturers, William R. Warner & Co. recommended that the preparation be refused recognition and that the report be submitted to Warner & Co. for action.

The report was submitted to the firm, and after waiting one month and no acknowledgment or reply having been received, the Council directed its publication. It is as follows:

REPORT ON INGLUVIN.

Ingluvin is manufactured by W. R. Warner & Co., chemists, Philadelphia, Pa. The printed matter contains numerous claims and representations of which the following are specimens:

"A positive specific for indigestion, dyspepsia and the most effective remedy in obstinate cases of vomiting of gestation. . . . A specific for vomiting in pregnancy in doses of from 10 to 20 grains, and a potent and reliable remedy for the cure of marasmus, cholera infantum, indigestion, dyspepsia, and sick stomach caused from debility of that organ. It is superior to the pepsin preparations since it acts with more certainty, and effects cures where they fail. . . . The natural glycocholic acid in Ingluvin is the active principle and the most efficient agent in the treatment of all stomachic and enteric disorders."

Two samples were purchased at different times in the open market and on examination found to consist essentially of powdered meat fiber mixed with what appeared to be a membranous tissue resembling the lining of a gizzard. Both samples on being tested by the method prescribed by the U. S. Pharmacopeia for estimating the strength of pepsin were found to possess little, if any, proteolytic activity. In order to determine whether or not the lining of a fowl's gizzard possesses proteolytic action, a fresh gizzard was secured, the lining washed slightly with water, then removed and on using one-half of same in place of pepsin as prescribed by the Pharmacopeial method, it was found to digest 10 grams of albumin within the time limit. Pepsin, when properly kept, does not lose its strength to any material extent.

A careful examination was made for the presence of glycocholic acid, claimed to be the active principle of ingluvin, but its presence could not be established. Furthermore, the anatomic relations of the fowl are such as to preclude its presence.

The above shows that ingluvin does not possess nearly as much proteolytic activity as ordinary saccharated pepsin recognized by the 1880 Pharmacopeia and which was prepared on the basis of digesting 300 times its weight of egg albumin. Inasmuch as no glycocholic acid is present in ingluvin it would seem that saccharated pepsin would be far more efficacious in treating the abnormal conditions for which ingluvin is recommended in the advertising circulars. Furthermore, the claims made for the preparation are grossly extravagant.

A communication from Warner & Co. has been received since the above report was adopted in which it is stated: "The reason that previous letter was not replied to was because we were desirous of securing all the information possible on the subject. Since that time we have made considerable research and also made laboratory investigation, and are enclosing the accumulated data with diagram of a part of the alimentary canal showing the esophagus, crop and gizzard."

Much of the other matter submitted is immaterial. The following, so far as it means anything seems to confirm the correctness of the report of the Council's referee that ingluvin is practically devoid of proteolytic activity: " . . . the therapeutic activity must be due to the bitter property, rather than any proteolytic activity, and it probably increases, thereby, the functional activity of the stomach, by which the normal digestive process is increased. Ingluvin in a 0.4 per cent. hydrochloric acid solution at 37 to 40 C. or if mixed with an aqueous solution of pepsin under the same conditions possesses an acrid bitter taste and increases the secretion of the saliva and as this is practically the same condition as when in the stomach, it no doubt stimulates the depressed mucosa peptic glands and increases gastric secretion."

W. A. PUCKNER, Secretary.

COMMENT.

The fallacies attending the use of digestive ferments in most stomach diseases have been previously noted in THE JOURNAL.[1] In most digestive disorders a deficiency of the digestive ferment has not been proved. In cases in which pepsin is lacking, its administration is valueless unless it is combined with large doses of hydrochloric acid, and it is doubtful whether this combination is either necessary or conspicuously useful. There is, however, something so alluring about medication by digestive ferments which are assumed to supply a physiologic need, that since their discovery they have formed a fertile field for the activity of the manufacturer of proprietaries. As by scientific laboratory tests, it is possible to determine whether a given preparation has digestive power, the manufacturers of ingluvin avoid this point by claiming that the remedy acts, not on the food, but on the stomach itself. That remedies may exist which act as stimulants to the digestive secretions can not be denied, although at the present time this power has not been satisfactorily demonstrated. The proprietors of ingluvin finding that proteolytic activity is not to be attributed to this preparation of chickens' gizzards, announce a new therapeutic fact in the claim that "the natural glycocholic acid in ingluvin is the active principle and the most efficient agent in the treatment of all stomachic and enteric disorders." According to the report made to the Council there is no glycocholic acid in this preparation, nor is it possible, from the anatomic arrangements of the fowl's digestive apparatus, for it to get there. By all the tests which can be applied to determine its value this preparation is of much less value in digestive disorders than saccharated pepsin which was discontinued in the pharmacopeia because of its inferiority to the other forms of the ferment.

The repudiation, by the manufacturers, of the more absurd claims made for ingluvin, shows the need of maintaining an attitude of healthy skepticism toward the advertised therapeutic virtues of proprietary preparations. If a physician is disposed to use digestive ferments, he should give preference to the official preparations and ferments from other sources should be required to stand the exact tests which demonstrate the worthlessness of so many preparations on the market.

1. Feb. 2, 1907, 415 and Feb. 9, 1907, 521.

Religious Journals and Nostrums.

The editor of the *Gesundheitslehrer*, in commenting on the fact that a certain religious journal devotes one-third of its advertising to advertisements of unsavory "patent medicines," remarks: "What would the religious journals say if the medical journals were to devote one-third of their advertising space to announcements of things known to be directly contrary to all the teachings of the church?"

"Neriot Ferment."

Two handsomely dressed persons applied to a number of drug stores in Paris with a prescription calling for "Neriot ferment according to the formula of Dr. Henry (depot 129 Rue Montmartre)." The druggists sent to the depot and each bought a bottle of the ferment. It turned out that this depot had been rented for the day and a supply of bottles installed. The two swindlers decamped with the proceeds that evening, forgetting to pay the rent, but their landlord, finding the demand so lively, prepared more bottles and continued to sell the "ferment" until the police appeared. His "ferment" had the advantage of being harmless, as he used water alone.

Correspondence

Bacterial Therapy and Diagnosis of Gonococcus Arthritis.

CHICAGO, July 4, 1908.

To the Editor:—Referring to the editorial on Bacterial Therapy and Diagnosis of Gonococcus Arthritis, in THE JOURNAL, July 4, it would appear that the clinical reaction occasionally found following the administration of large doses of gonococcus vaccine was regarded as something recently discovered. It might prove a matter of interest, considering the importance attached to this statement, to know that such reactions are observed, at times, following the use of any vaccine. The local reaction at the site of inoculation is more common, consisting of a small nodule or indurated area beneath the skin, which is more or less sensitive to touch. The patient will frequently complain of this spot being sore or painful for several days after injection is made. If after several injections of vaccine a greatly increased dose is administered one may find a recurrence of the local reaction at all previous points of inoculation, as indicated by these tender indurated areas. Also, after an unusually large dose of vaccine, as I have observed in isolated instances, in the case of gonococcus and staphylococcus vaccines, at the time of injection the overlying skin may become red and hemorrhagic streaks may appear. A pronounced general reaction follows with exag-

geration temporarily of the symptoms and signs of the local infection. The reaction at the site of inoculation in such cases may pursue a course similar to vaccination.

Such consequences depend on the altered reaction of the organism toward the particular bacterial product. The extent of the reaction will depend on this factor, the quantity of vaccine employed and the method of administration. This holds true not only for tuberculin, but for all vaccines. I have observed pronounced clinical and stick (inoculation site) reactions, following the use of staphylococcus, streptococcus, gonococcus, etc., vaccines. The stick reaction (the tender nodule under the skin at the point of injection) is the more common and has diagnostic value. The injection of a very large dose for the patient of any vaccine, corresponding to the organism or organisms causing the disease, may give rise to a general reaction, rise of temperature, etc., as well as to a stick reaction, and is of diagnostic value, though neither is of decisive differential diagnostic value.

WILLIAM J. BUTLER, M.D.

New York Bovine Tuberculosis Inspection.

ALBANY, N. Y., June 27, 1908.

To the Editor:—I have read with interest the statements in THE JOURNAL of June 20, concerning bovine tuberculosis in New York State. Feeling sure that you wish to present the facts correctly, I submit the following:

The Allds-Lansing bill when introduced provided for an additional appropriation of $200,000. This was cut in the senate to $75,000, which amount finally passed. This, together with the appropriation made in regular session of our legislature, puts about $130,000 at the disposal of the commissioner of agriculture in connection with his work against contagious and infectious diseases of animals.

Our veterinarians visit herds where contagious or infectious diseases are supposed to exist. They always make a physical examination first. If tuberculosis is believed to exist, the owners of the herd are asked if they want the tuberculin test used and almost always they request it. We now have on file about sixty such requests. We attach great value to the tuberculin test, as it is the best means known for diagnosing tuberculosis. The physical test has some value and we are using it for what it is worth. It will reveal certain advanced cases of tuberculosis and certain bad cases of tuberculosis of the udder. Our experience has shown repeatedly that some cases of generalized tuberculosis, such as would undoubtedly result in the contamination of the meat of the animal, can not be recognized by physical examination alone, but, so far as we know, they are always found when the tuberculin test is applied.

The special point which I wish to make in connection with your statement is that we have not found the tuberculin test "unreliable as well as costly and cruel." You may be interested also to know that we are now killing such reacting animals as the owners do not wish to keep in quarantine. The killing is done under federal supervision, which permits the use of such meat as is found wholesome. This, we believe, removes the greatest objection to the use of tuberculin. It should not be overlooked also that our new amendment provides for larger payments to farmers for animals condemned on account of tuberculosis.

R. A. PEARSON,
Commissioner, Department of Agriculture.

Dr. Hoffa Not Born in America.

MILWAUKEE, WIS., July 5, 1908.

To the Editor:—Your Berlin correspondent, whom you introduced to your readers as a man of high standing, writes of the late Professor Hoffa: "He was closely related to Americans, as he was born in South America." Now, all the numerous biographies of Hoffa I have read state that he was born in South Africa and was never in America until a few years ago. My criticism may seem trivial, but such statements, if allowed to stand, may reflect on the authenticity of other interesting things your correspondent is telling us.

CHESTER M. ECHOLS, M.D.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

County Society Uses Local Newspapers.

The Jefferson County (Texas) Medical Society has begun the publication in the newspapers of popular articles on medicine. The *Beaumont Enterprise* for Sunday, June 28, contains an excellent article, signed by the Jefferson County Medical Society, on "The Progress of Medical Science," wherein the development of medicine from earlier times to the present is briefly but interestingly summarized. Such articles published impersonally by a society for the benefit of the people of the county can not fail to be of great educational advantage.

The Lay Press on Antivivisection.

One of the most striking results of the recent session of the American Medical Association is the widespread and general comment of the better class of newspapers regarding the work and aims of the Association. It is equally significant that the feature of the session which attracted the most attention was the recommendation for a Council for the Defense of Medical Research, in order to counteract the antivivisection agitation which has become noticeable in several states. It is particularly gratifying to note that the newspapers, without exception, condemned the attempts to restrict scientific investigation by the limitation of animal experiments as unwise and unnecessary, and recognized that the regulation of such matters could safely be entrusted to the medical profession. One of the most interesting of these comments appeared in the *Sioux City* (Iowa) *Journal*, in which the entire question is summarized with remarkable accuracy and clearness:

The aggressive stand in favor of vivisection taken by the American Medical Association at its Chicago meeting has renewed interest in an old debate. . . . The decision of the Association was that inasmuch as there is an organized campaign to promote sentiment against the practice a counter campaign of education be undertaken in its behalf. It would seem that not much earnest effort along this line would be needed to cut the ground from under the antivivisection propaganda. The sentiment against vivisection has been cultivated mainly by societies for the prevention of cruelty to animals. These societies do noble and useful work in protecting our animal friends from unnecessarily cruel treatment by brutal or thoughtless human beings. In the matter of vivisection, however, the advocates of humanity have taken the wrong tack and allowed their espousal of animal rights to supersede their recognition of human rights. Our whole civilization has moved on the theory that animal life must be sacrified to preserve human life. This principle is involved in the defense of vivisection, but the prosecution refuses to look at the real merits of the case. . . . In the battle against the bacilli the only way in which victory can be won is by experiment. Shall the experiment be made with dogs and guinea-pigs, or with little children and their parents? Or shall there be no experiments, even though there be certain knowledge that a successful experiment would save annually the lives of tens of thousands of human beings during all the generations to come? The antivivisectionists seem to think that doctors do their experimenting for their own amusement, and that they take a sort of fiendish satisfaction in the suffering that attends their work. As a matter of fact, the doctors are working for humanity in a much more practical way than the sentimentalists who are criticizing the inhumanity of vivisection. There may be cruelty in the connection with animal sacrifice, but it is safe to say there is very little avoidable cruelty. The newspapers that are proposing legislation against vivisection are proposing a very poor bargain. They propose in effect to trade a great deal of human life and happiness for a very little animal life and happiness. It is a proposal that can not withstand a campaign of education.

The *Buffalo News* says editorially, speaking of the action of the Association:

The reason is that so much unwisdom is uttered, such un-

sound arguments advanced against the practice of vivisection that the progress of medical science itself is seriously threatened with hindrance and delay from that cause. This danger is recognized frankly by the Association, and it feels that nothing is left it but war or submission to the judgment of ill-informed and hopelessly prejudiced sentimentalists. . . . The progress of medicine and surgery . . . in the last fifty years has been due largely if not mainly to the practice of vivisection in the hands of those competent to employ that resource of study. The campaign against vivisection lacks discrimination. Its purpose is to put a ban on the practice even in the hands of the most considerate and expert of operators. It must fail because on the question of relieving human pain at the risk of comparatively little pain to animals or of no relief to humanity the animals will have to suffer the pain for the sake of the human advantage.

One of the most interesting comments appears in the *Saturday Evening Post*, in which, after stating that there are at any given time several hundreds of thousands of people in the country who are "sore at the doctor" for various reasons and ready to take up any war-cry against him, the editorial continues:

But before the Association's disturbance subsides, the anti-vivisection crusade will have been dropped in favor of some fresher crusade. We recall the able editor who conducted a brilliantly successful crusade to make the zoo people feed the big snake on bologna sausage instead of rats, and followed it by one, equally successful, for the extermination of rats. To people having human ties animal experimentation is preferable to human experimentation, and the choice lies between the two.

The *Saturday Evening Post* is quite right in stating that this crusade on the part of many of its followers will soon give way to an equally energetic and intelligent movement in support of some other fad, and that many of its followers enter into such agitation without the slightest investigation or knowledge of conditions and consequently soon drop it for some newer sensation.

But legislatures are often influenced by such appeals and bills are frequently passed and become laws with just as little knowledge of conditions, or investigation on the part of the legislators, as is possessed by the advocates of the measure. It consequently requires just as much effort to counteract a sentimental and ill-founded movement as it does to carry on a more serious and important campaign. The time and energy spent by the medical profession in the last ten years in successfully opposing legislation which would deprive physicians of opportunities for research work could far better have been spent in investigating diseases and developing improved methods of treatment and prevention for them.

If the medical profession can be entrusted with the care of the lives and health of the men, women and children of the country it can certainly be trusted with the far lesser duty of protecting dumb animals against needless and unnecessary pain and suffering. The term "vivisection," so frequently used by the advocates of legal restriction, is in itself misleading and inaccurate. Probably 80 per cent. of the animal experiments performed to-day are done with a hypodermic syringe and should be called vivipuncture rather than vivisection, since there is no cutting connected with any stage of the experiment. The suffering experienced by a thousand guinea-pigs is probably not equal to that endured by a single little child suffering from diphtheria or scarlet fever.

Association of State Secretaries and Editors of State Journals.

On Monday night, June 1, preceding the recent Chicago session of the Association, an important movement was inaugurated in the organization of the state secretaries and editors association. The meeting was called by a committee on organization appointed at Atlantic City of which Dr. Walter Cheyne of South Carolina was chairman. Over forty editors of state journals and secretaries of state associations met at the Victoria Hotel and sat down to dinner together, following which the meeting was called to order by Dr. Cheyne, who called Dr. George H. Simmons to the chair. Dr. E. J. Goodwin, editor of the *Journal of the Missouri State Medical Association*, was elected secretary. Dr. Cheyne detailed the correspondence he had carried on with various state secretaries and editors and said that a field of usefulness was open to the new organization and that he believed much benefit would follow its establishment.

DR. WISNER R. TOWNSEND, New York, secretary of the Medical Society of the State of New York, was called on to discuss "The Duties of the Secretary." He said in part that the question seemed to resolve itself into a matter of labor—how to do more work and do it well. There were efficient secretaries and inefficient secretaries, but rarely one who was absolutely inefficient. If the state secretary would watch the slothful ones, they could be displaced or encouraged to do good work. Among the important duties of the secretary was attendance at the annual session of the American Medical Association. It would be of great value to every county society if it sent its secretary. This would inspire the secretary with new determination to work for the growth of his society, for at these meetings were found so many men who were doing things that we could not fail to be enthused. This Association should advocate a uniform plan for all county societies for the collection of dues and reporting of membership lists to the American Medical Association. The state secretary should be a capable and willing officer. He should assist and guide the county secretaries in their work and encourage them to persist in keeping up interest in the county society, but should never "nag" nor publicly find fault, especially about trifling details. Each secretary may have a different method of getting the results, but if he succeeds that is all that should be asked. Dr. Townsend said it was a great pleasure to testify publicly to the good work done by the secretaries of the county societies in New York State.

DR. MELVILLE BLACK, Denver, secretary of the Colorado State Medical Society, spoke on medical organization of the present day. He said that medical organization from every standpoint was to be encouraged and fostered. This would fill an hiatus in the scheme of organization and would be productive of great good, not only to the secretaries and editors, but to the county and state societies and to the American Medical Association. Through the state journals the members could be brought into close touch with each other, and the knowledge that their papers would be published in the journal would stimulate greater interest in society work and encourage more frequent attendance at society meetings.

DR. PHILIP MILLS JONES, San Francisco, secretary of the Medical Society of the State of California, said that medical organization was as much a business as the printing of books or the running of railroad trains. We must reach out, not for the men at the top—they could take care of themselves—but for the men who were struggling along in the middle or at the bottom and even hypnotize them into the society. Medical men must be kept busy in medical work, for if they were not busy working together, they would be busy at each other. He said that he had represented medical journalism militant for the last six years. While he knew that this was not the ideal type of medical journalism, it was the only type that he conceived to be of value to the medical society. The medical association journals should be be absolutely clean and free from the taint of blood money. Six years ago we had no way of telling whether the manufacturer, who sent his representatives to our offices, was telling the truth about his preparations or was lying about them. As a matter of fact, we know that there is not a manufacturer who has not misrepresented some preparation. How shall we discriminate between the true and false? Shall we appoint a nice, respectable publication committee, who will take the copy of the advertiser and look over it and finding it apparently acceptable, approve it? This would simply mean nothing in regard to an accurate solution of the problem. The Council on Pharmacy and Chemistry was the proper body to consult in these matters, and we should back up the work of this council in every possible way. It was the only institution in the world where the physician can go and ask if the constituents of products put out by advertisers were truthfully reported and receive truthful answers.

DR. A. E. BULSON, Fort Wayne, Ind., editor of the *Journal of the Indiana State Medical Association*, spoke on "The Difference Between the Dependent Journal and the State

Society Journal." Dr. Bulson said that he was in hearty sympathy with the organization of this association. He described the growth of the Indiana State Medical Association from a membership of 800 to its present membership of 2,800. He commended the work of the Council on Pharmacy and Chemistry, and said that he thought its findings should be strictly followed by all state journals and that only articles approved by it should be advertised. He said that he had edited for a number of years a journal which was dependent absolutely on its advertising income, but that he had always endeavored to keep the reading pages free from advertising. He had continued to publish a dependent journal until conditions in the state made it possible to publish a state journal which should be clean and should represent the better class of men in the profession.

DR. A. W. MCALESTER, JR., Columbia, Mo., secretary of the Missouri State Medical Association, presented a draft of a constitution and by-laws for consideration. As adopted, provisions were made for an organization to be known as the Association of State Secretaries and Editors of State Association Journals, membership to be limited to the secretaries of the American Medical Association, the secretaries of state and affiliated branch associations of the American Medical Association and the editors of state journals. Annual meetings are to be held each year on the day preceding the annual session of the American Medical Association. The objects of the association are to cultivate a closer relation among the state associations, to establish improved and more uniform methods of conducting business, to promote the interests of the state journals and to develop the best method of conducting them and by cooperating with the officers of the American Medical Association to promote welfare of the profession.

The following officers were elected for the coming year: President, Dr. Walter Cheyne, South Carolina; vice-presidents, Drs. Philip Mills Jones, California, and W. R. Townsend, New York; secretary, Dr. L. H. South, Kentucky. Dr. Cheyne announced the following committees: Committee of secretaries, Dr. A. W. McAlester, Jr., chairman, Missouri; Dr. W. R. Townsend, New York; Dr. Thomas McDavitt, Minnesota; committee of editors, Dr. E. J. Goodwin, chairman, Missouri; Dr. I. C. Chase, Texas; Dr. A. W. McCormack, Kentucky.

Maryland Establishes a State Journal.

The first number of the *Bulletin of the Medical and Chirurgical Faculty of Maryland* was issued July 1, 1908. This is the first appearance of the eighteenth medical journal owned and published by a state association. Dr. H. O. Reik of Baltimore is the editor of the new journal, with Dr. J. A. Chatard as associate editor and Dr. John Ruhräh, secretary of the Medical and Chirurgical Faculty of Maryland, as an ex-officio member of the publication committee. In the foreword the editor states the position of the new journal plainly and positively. After emphasizing the importance of official journals as a means of communication between the different component parts of a medical organization, and the increased need of such a medium following reorganization, the alternatives and advantages of establishing such a journal are discussed. The purchase of an established journal is generally impossible on account of the expense. Considering the plan of publishing society proceedings in a journal over which the society has no control, the editor says:

> Such a policy can not fail to place the society in a most embarrassing position. It is folly to expect any journal owned and controlled by laymen to respect the higher ideals of the profession. All such papers are conducted for the purpose primarily of making money and the business manager is none too particular about discriminating between the revenue tendered by the advertiser of a fraudulent proprietary medicine and that offered with the advertisement of an honestly conducted hospital or pharmacy. Consider for a moment how ridiculous it appears to read in one portion of a journal the resolutions enthusiastically adopted by the state society endorsing the work of the Council on Pharmacy and Chemistry of the American Medical Association, and then, turning to the advertising pages, to find nearly all the articles condemned by the Council glaringly and brazenly setting forth their false or exaggerated claims to virtue. It is silly to try to delude ourselves with the notion that there is no relation between the advertising pages and those devoted to professional or scientific matters. . . . The journal that pretends to be honest and to condemn fraudulent preparations and yet makes its living from the publication of such advertisements is accepting blood money. The medical society that endorses such a journal or that continues to publish its proceedings in such a journal after having failed in an effort to correct the abuses, or, worse still, that profits by the admission of such advertisements to a journal of its own, is morally responsible for the fraud perpetrated.

The editor then reviews the recent action of the state house of delegates which instructed the council to inaugurate the publication of a monthly bulletin. To insure the cleanly character of the new publication, it was further provided by resolution that "no advertisement of any proprietary or patent medicine that has not received the endorsement of the Council on Pharmacy and Chemistry shall be accepted." The Medical and Chirurgical Faculty of Maryland is to be congratulated on the high stand taken by its house of delegates as well as the character of this, its first official publication. After Jan. 1, 1909, the *Bulletin* will publish all the important transactions of the state and county societies. It is welcome to the ranks of state journals and will without doubt prove of great value to the physicians of Maryland.

County Society Acts in Contract Practice.

The Jefferson County (Wis.) Medical Society has unanimously adopted resolutions providing that no member of the society shall enter into any contract or agreement with any society, lodge or association whereby an indefinite amount of services is required for a fixed fee. This is in accordance with the general principles on this subject previously suggested in this department. The evil in contract practice is not in the fact that a contract exists, but that, in practically all instances, the terms of the contracts as previously entered into have been unfair to all the parties concerned.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES.

DR. JOHN H. BLACKBURN, DIRECTOR.
BOWLING GREEN, KENTUCKY.

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Tenth Month.

FOURTH WEEKLY MEETING.

Carcinoma of the Liver.

Pathology.

Types of carcinoma, microscopic diagnosis of each. Gross appearances, (a) single tumor, with secondary deposits about it, (b) "Farre's tubercles" secondary to primary lesion. Primary or secondary cancer. Association of cancer and cirrhosis.

Symptoms and Diagnosis.

Symptoms: Variety and intensity of symptoms. Jaundice, pain, ascites, fever, cachexia, cerebral symptoms, metastases, the blood. Inspection, palpation, percussion.

Diagnosis: Carcinoma of pylorus or colon. Abscess, syphilis, benign tumors and hypertrophic cirrhosis of liver.

Cirrhosis of the Liver.

Atrophic.

Etiology: Alcoholism, age, sex, diet, acute infections, chronic diseases, cardiac and pulmonary lesions.

Symptoms: Prodromal symptoms. Obstruction to portal circulation. Gastrointestinal disturbances, spleen, urine, ascites. Toxemic symptoms. Facies, "caput Medusæ." Inspection, palpation, percussion.

Hypertrophic (Hanot).

Etiology: Sex, age, catarrhal jaundice, acute infections.

Symptoms: Onset, digestive disturbances. Jaundice, fever, pain, hemorrhages. Physical examination. Termination.

Biliary.

Etiology: Chronic obstruction to ducts.

Symptoms: Symptoms of cholangitis, jaundice, hepatic intermittent fever. Physical examination. Terminations.

Miscellany

Mendelism and Disease.—Mr. R. C. Punnett in an address before the Epidemiological Section of the Royal Society of Medicine (*Proc. Roy. Soc. Med.*, March, 1908), says that the recent work has served to confirm and extend the principles laid down by Mendel. He summarizes Mendel's law, using in illustration the possible variations between black, blue, and white, attainable by various crossings of these three colors in the Andalusian fowl, and sums up in general terms as follows: "The characters of plants and animals may in many cases be regarded as existing in alternative pairs. Corresponding to each member of such a pair is something representing it which may be carried by the gamete. These factors which the gamete carries are the channel by which the qualities of the parent are transmitted to the offspring. Every gamete contains one, and only one, of the factors corresponding to a given pair of characters, i. e., is pure for that character. For any given pair of characters, therefore, there can be two, and only two, classes of gametes: those pure for one member of the pair and those pure for the other member of the pair. But there can be three different kinds of zygote, for each zygote is formed by the union of two gametes; and since two kinds of gamete exist it is obvious that three kinds of union among them are possible. Two gametes, each pure for one member of the alternative pair of characters, may unite; or two gametes, each pure for the other member of the pair may unite; or, thirdly, two unlike gametes may unite. The zygote so formed contains representatives of each member of the pair, and is known as a *heterozygote* (hybrid), whereas zygotes containing representatives of but one member of the pair are termed *homozygotes*. Like the homozygote the heterozygote produces pure gametes; only it produces equal numbers of the two kinds instead of producing all of one kind. In this lies the explanation of the fact that hybrids mated together produce a definite proportion of the pure forms which subsequently breed true without ever giving a hint of their mixed ancestry." He discusses the results of breeding with the "dominant" and the "recessive" and catalogues a diversity of characters showing Mendelian inheritance, viz., size, structure, chemical properties, time of flowering, color, sterility and immunity (as to disease in wheat). He describes Biffen's experiment in crossing wheat, immune and susceptible to yellow rust, and considers it from the point of view of medicine probably one of the most important experiments ever made. Mendelian heredity in the human subject is illustrated by pairs of characters in eye color, brachydactyly, and certain forms of hereditary disease. Other points discussed are dihybridism, interdependence of characters and the nature of the alternative pairs, interaction of characters, gametic coupling, partial coupling, and sex limited diseases, explaining the limiting of hemophilia to males. Cases not dissimilar to those of sex limited diseases in man occur among animals, and he describes experiments by Mr. Baterson and himself in the transmission of pigmented characteristics in the silky fowl, where the unaffected male can transmit, but only to the opposite sex, which he hopes will throw light on diseases like hemophilia and peroneal atrophy. "There is little doubt but that a knowledge of Mendel's principles must be of value in the study of disease for when once Mendelian analysis has established the operation of the law and the nature of the characters concerned, we are in a position to predict always the probable, sometimes the inevitable, result of a given mating. When a brachydactylous man marries a normal woman we are certain that there is an even chance of any given child being born diseased or normal. When two normal people with night blind parents and grand parents marry we may predict with confidence that none of their children will inherit the disease."

In the hope of gaining information he suggests that diseases fall into at least three classes: "(1) Diseases which depend directly on a structural change in the gamete, by either the addition or subtraction of some character as compared with the normal, e. g., night blindness, brachydactyly, alkaptonuria. (2) Diseases in which such structural change of the gamete is without visible effect, but renders the individual liable to invasion by bacteria, etc. The disease is not manifested unless the structural change and the external organism are both present; e. g., rust in wheat. (3) Diseases caused by external invasion, for which immunity, as implied by gametic structure, is not known to exist, e. g., syphilis, ankylostomiasis. Of these three classes we should expect (1) and (2) to exhibit the phenomenon of Mendelian heredity in one form or another. But class (3) is of an entirely different nature and can not be inherited in the biologist's sense of the term. It seems not inconceivable that Mendelian analysis may be sometimes valuable as a criterion for separating this class of disease from the others."

Alleged Antitoxic Action of Salt.—A group of medical students at Buenos Ayres have been studying the action of salt as an antidote for curare according to the popular conception. Curare applied to a wound is not absorbed if salt is mixed with it or applied immediately afterward. Their experimental research is related in the *Revista del Centro Estudiantes de Med.*, viii, Nos. 77-79, 1908. It demonstrates that the addition of salt delays absorption of the curare, as also of any other poison, the salt inducing an osmotic current outward which interferes with the absorption of the poison. Any other chemical substance with this property answers the same purpose as the salt. It is exclusively a physical phenomenon.

Neutralizing Action of Cholesterin on Tetanus Toxin.—Almagia and Mendes have been conducting research at Rome in this line, and they found that cholesterin displayed a marked neutralizing power in respect to tetanus toxin, strychnin and curare. Otherwise fatal experimental doses of either were neutralized by injection of cholesterin, and also to a lesser degree by lecithin. Pulverized animal charcoal also neutralized otherwise fatal doses of strychnin in the animals. Tetanus toxin mixed in the test-tube with the charcoal did not seem to be influenced by it. Lecithin seemed to enhance the toxic action of curare while cholesterin apparently neutralized it. Their work is briefly mentioned in the *Münch. med., Wchnschr.*, April 14.

Book Notices

HANDBUCH DER BIOCHEMIE DER MENSCHEN UND DER TIERE. Herausgegeben von Dr. Phil. et Med. Carl Oppenheimer, Berlin. Erste Lieferung, mit 11 Abbildungen. Pp. 160. Paper. Price, $1.25. Jena: Verlag von Gustav Fischer, 1908.

Biologic chemistry is rapidly coming into its own as a distinct branch of the biologic sciences, instead of occupying its former suppressed position as either the handmaid of physiology or an ignoble offshoot of pure chemistry; in witness whereof we have the appearance within two or three years of new journals of biologic chemistry in America, England and Germany, as well as the newly formed and flourishing Society of Biological Chemists. One of the several reasons for the tardy advance of biologic chemistry was the ineffective and unsatisfactory methods of analysis that were available for the study of the highly complex substances with which this science has to deal; consequently its rapid development in the last few years has been associated with and largely the result of improvements in analytical methods. The "Handbuch der Biochemie," therefore, has the important function of collecting these analytical methods from their scattered sources in articles on original research, and making them available for the research worker and for the clinical laboratory. This valuable enterprise will undoubtedly meet a hearty reception from the large and increasing number of chemists, biologists, and physicians who are applying chemical methods to research, diagnosis and therapeutics; and its quality is assured by the reputation of its editor and the large staff of associates. The scope of the publication is shown by the fact that it will appear in twenty separate sections, each about 160 pages in length. Such a book is much needed, and it will undoubtedly be found soon on the

shelves of every well-equipped laboratory of physiology, biology, chemistry or biologic chemistry.

PRACTICAL TREATISE on Fractures and Dislocations by Lewis A. Stimson, B.A., M.D., etc., Professor of Surgery in Cornell University Medical College, New York. Fifth Edition, Revised and Enlarged. Illustrated. Cloth. Pp. 847. Price, $5.00. New York and Philadelphia: Lea Bros. & Co., 1907.

About one-third of this volume is devoted to a presentation of the etiology, pathology, diagnosis, prognosis and general principles of treatment, the remainder being given to special diagnosis and treatment of the various forms of this class of injuries.

Valuable additions have been made to this edition from the accumulation of the literature of late years based on the revelations of the Roentgen rays regarding injuries of the small bones of the wrist and foot and of the ends of the long bones. The large amount of material at the command of the author has been utilized to make this book one of the most complete from the clinical standpoint in the English language. There have also been added many new cuts and skiagrams, the latter helping to make clear the exact nature of some forms of fractures and dislocations which recently have been only partially or not at all recognized.

The entire work is authoritative and a safe guide for the practitioner as well as for the student.

We would specially commend the views of the author on the question of direct fixation of the bone fragments in fractures; he prefers temporary direct fixation or fixation by absorbable suture to direct fixation by non-absorbable suture or metallic apparatus. While admitting the value of the Roentgen rays in some obscure cases, in fractures of the small bones and in fractures near joints, Dr. Stimson points out that errors of interpretation are frequent. The skiagram should be interpreted by the aid of the clinical findings and of considerable experience in its use. He is conservative and we believe therefore correct in his views regarding treatment of fractures of the vertebra and of the patella.

THE NEWER REMEDIES. By Virgil Coblentz, A.M., Phar.M., Ph.D., F.C.S. Professor of Chemistry in Columbia University, Department of Pharmacy. Fourth Edition, Revised and Enlarged. Cloth. Pp. 133. Boston: The Apothecary Publishing Co., 1908.

In this book the composition of the newer remedies is given in accordance with the statements of the manufacturers, except, as the author states in the preface, in those instances in which analyses have been published by independent investigators. Coblentz calls attention to the work in this line being done by the Council on Pharmacy and Chemistry of the American Medical Association, the Pharmaceutical Laboratory of Berlin University, and by Drs. Zernik, Koch and Aufrecht, whose publications appear in the *Apotheker Zeitung*, the *Pharmaceutische Centrahalle* and the *Pharmaceutische Zeitung*. In most instances the remedies are listed and described under the proprietary name, a cross reference being made to the chemical name—for example: acetyl-salicylic acid—aspirin. Phenalgin is given as a synonym for ammonol. The analysis published by the Council on Pharmacy and Chemistry for this latter preparation is given, but there is no credit to either the Council or THE JOURNAL, in which it appeared June 3, 1905, the inference being, naturally, after reading the statement in the preface above referred to, that the analysis is that furnished by the manufacturers. The same criticism applies to the analysis of orangeine. No mention is made of the adverse reports of the Council on tartarlithine, uron and thialion. In some other cases, as for example Tyree's powder and oxychlorin, reference is made to the published reports of the Council.

MEAT AND FOOD INSPECTION. By Wm. Robertson, M.D., D.P.H., F.T.S., Lecturer on Public Health. Royal College for Surgeons, Edinburgh. Cloth. Pp. 372, with illustrations. Price, $3.50. Chicago; W. T. Keener & Co., 1908.

While the training of a veterinarian is needed to meet the more complicated problems arising in the inspection of animals intended for food, Dr. Robertson holds that every student of medicine possesses the requisite knowledge of pathology to pronounce opinions on pathologic conditions of animals intended for food and that even the intelligent layman after close study can become a judge of the wholesomeness of meats. Considering the importance of the subject it is strange that so little attention has been paid to it. Where the sanitary authorities can not afford to employ a special veterinarian, the health officer should fit himself for the ordinary duties of food inspection. To assist the latter in such preparation, the author has included in the scope of his work the inspection of stables, pigstyes, milk-shops, etc., as well as the inspection of slaughter-houses and meat. These subjects occupy the first half of the book, while the second half consists of the laws relating to food inspection, those in force in the United States being given by Dr. Maximilian Herzog in an appendix. The volume, although of special value to British officers, ought also to be very serviceable to American sanitary authorities. It is well illustrated.

THE EFFICIENT LIFE. By Luther H. Gulick, M.D., Director of Physical Training in the New York City Schools. With Double-page Frontispiece. Cloth. Pp. 195. Price, $1.20 net. New York: Doubleday Page & Co., 1907.

Gulick appropriately dedicates his book "to Theodore Roosevelt, who sometimes leads the simple life, who often leads the strenuous life, but who always leads the efficient life." The volume may be put into the hands of patients who wish advice about eating, sleeping, bathing, exercising and, in general, putting the body into a condition in which the greatest efficiency may be obtained. The soundness of the advice may be illustrated by the following on stimulants: "It is never safe to consent to dose a man up, unless you can get him to give you his word of honor that he will give himself a corresponding vacation as soon as the special strain is over." And this: "Pain is like a danger signal on a railroad. . . . There are times when it is perfectly right to aim at the pain. . . . Perhaps some important work must be carried through." When a man stops the pain with drugs, "from that moment on he has assumed absolute responsibility for the conditions, whatever they are, that gave rise to the pain. . . . A headache powder does not hit the cause of the headache any more than a laxative hits the cause of constipation or a spoonful of pepsin the cause of indigestion."

LES PSEUDO-BACILLES ACIDO-RÉSISTANTS. Critique des méthodes de coloration du bacille tuberculeux. Révision du groupe des bacilles dits acido-résistants. Par le Dr. André Philibert. Travail du Laboratoire de bactériologie de la Faculté de médecine de Paris. Paper. Pp. 144. Paris: G. Steinheil, Editeur, 1908.

This is a monograph from the laboratory of bacteriology of the University of Paris, containing a thorough consideration of the causes and significance of the acid-resisting property of *Bacillus tuberculosis* and a few other organisms. Some of the conclusions reached are of great importance for practical diagnosis, and they are probably warranted. Among them are these: True acid-resisting bacteria consist of two groups, the *B. tuberculosis* in all its varieties, and the "tuberculoid" bacteria of milk, grains, grass, etc. There also is a third group of acid-resisting bacteria which have been found in urine, smegma, sputum, sebaceous material, fibrinous exudates, and in cadavers, in which this staining property is an acquired character, perhaps due to the character of the soil in which the organisms have been grown. It is of course important that these organisms be distinguished from the true tubercle bacilli, and this is not difficult because, though acid-resistant, they are not alcohol-resistant. Consequently, if in staining the decolorization is made with alcohol according to the regular Ziehl-Neelsen method, the forms of this third group will be decolorized.

FORMULAIRE SYNTHÉTIQUE DE MÉDECINE. By Dr. L. Pron. Pp. 601. Price, 6 fr. Paris: Jules Rousset, 1908.

This formulary book, suited especially to the needs of French physicians, is constructed on a somewhat different plan from other similar works. It aims to give the properties of medicines and at the same time their therapeutic indications and to analyze from the therapeutic side the indications for treatment afforded by individual symptoms. Not only are the indications for each remedy given, but the contra-indications are also pointed out. Other methods of treatment besides drugs, such as climate, mineral waters, electricity, etc., are included. The book is of a convenient size for the pocket and bound with flexible covers.

TASCHENBUCH DER PHYSIOLOGIE. By Prof. Dr. Med. H. Boruttau, Berlin. Vols. I and II. Paper. Price, $6.00 per set. Leipzig: Dr. Werner Klinkhardt, 1908.

This represents a German variety of that familiar pedagogic abomination, the "quiz compend," which seems generally to be constructed with the sole object of making thinking an unnecessary accomplishment, and of substituting the habit of mental cold storage of facts and near-facts in place of habits of observation and deduction. The quality of a medical school may be estimated as in inverse proportion to the use its students find for this sort of publication.

COMMONER DISEASES OF THE EYE. By Casey A. Wood, M.D., C.M., D.C.L., Professor of Ophthalmology, Northwestern University, Chicago, and Thomas A. Woodruff, M.D., C.M., L.R.C.P. (London), Ophthalmic Surgeon, St. Luke's Hospital and St. Anthony de Padua Hospital, Chicago. Third Edition, Enlarged and Improved. Cloth. Pp. 598. Price, $2.50. Chicago: W. T. Keener Co., 1907.

In the new edition this excellent little volume has been enlarged and much improved, making it more than ever a practical text-book for the general practitioner who must be acquainted with all the common eye affections and yet can not give time to master all the details of volumes for specialists.

THE SANITATION OF RECREATION CAMPS AND PARKS. By Dr. Harvey B. Bashore, Medical Inspector for Pennsylvania Department of Health. First Edition. Pp. 109, with illustrations. Cloth. Price, $1.00. New York: John Wiley & Sons. London: Chapman & Hall, 1908.

This little work details the sanitation of camps, whether military, labor, hunting or recreation, and the keynote of it all is pure water and the proper disposal of waste.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

COMPOSITION OF GOAT'S MILK.

FESLIN, EGYPT, June 14, 1908.

To the Editor:—Kindly give me the percentage of fat proteid, etc., in goat's milk as compared with cow's milk.

H. E. HANSON.

ANSWER.—According to Bunge (Text-Book of Physiologic and Pathologic Chemistry, second English edition), one hundred parts of milk contain:

	Cow.	Goat.
Casein	3.0	3.2
Albumin	0.5	1.1
Total proteids	3.5	4.3
Fat	3.7	4.8
Sugar of milk	4.9	4.5
Ash	0.7	0.8

REPTILES DO NOT LIVE IN HUMAN STOMACH.

GREAT MILLS, MD., June 23, 1908.

To the Editor:—Is it possible for a snake or reptile to live in the human stomach?

H. A. BROOKS, M.D.

ANSWER.—No authentic case is known of the existence of a living, air-breathing animal in the human stomach. The accounts of such conditions are founded on abnormal sensations erroneously interpreted by credulous people to indicate the presence of a living animal. The cases should be treated in such a way as to remove, if possible, the morbid sensations and at the same time dispel the delusion founded on them.

COMPRESSION THERAPY IN GYNECOLOGY.

LOUISVILLE, KY.

To the Editor:—Please refer me to some book or article that gives indications and technic in the use of the colpeurynter filled with mercury. This method, called the weighting treatment, is referred to in THE JOURNAL, Jan. 25, 1908, in an abstract on page 323.

R. R. ELMORE.

ANSWER.—This method of gynecologic treatment was evolved by Ludwig Pincus of Danzig, Germany, and described by him in a monograph entitled *"Belastungslagerung, Grundzüge einer nicht-Operative Behandlung chronischentzändlicher Frauenkrankheiten und deren Folgezustände,"* Wiesbaden, 1905, J. F. Bergman. A description of the method is also given in the *Monatsschrift für Geburtshülfe und Gynäkologie*, xxi, 71. A short abstract was also published in THE JOURNAL, May 20, 1905, xliv, 1650

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending July 4, 1908:

Kirkpatrick, T. J., major M. C., ordered from Ft. Moultrie, S. C., to Chickamauga Park, Ga., for duty.

Baker, F. C., capt., M. C., ordered from Ft. Oglethorpe, Ga., to Chickamauga Park, Ga., for duty.

Wickline, W. A., capt., M. C., left Army G. H., San Francisco, with one-half of Co. B. H. C., for duty at Leon Springs, Texas.

Zinke, S. G., capt., M. C., ordered with Field Artillery from Ft. Leavenworth, Kans., to Ft. D. A. Russell, Wyo., for duty during the maneuvers.

Vose, W. E., capt., M. C., ordered from Ft. Des Moines, Iowa, to Ft. Mackenzie, Wyo., for duty in the field.

Reynolds, C. R., capt., Cowles, C. D., Jr., first lieut., Huber, E. G., first lieut., and Lambie, J. S., Jr., first lieut., M. C., left Gen. Hosp., Washington, D. C., with 50 men of Co. C, H. C., for Chickamauga Park, Ga., Field Hospital No. 8.

Whaley, A. M., capt., M. C., left Ft. Sam Houston, Texas, for duty at camp, Leon Springs, Texas.

Lamson, T., capt., M. C., granted leave of absence for two months, with permission to ask extension of one month.

Manly, C. J., capt., M. C., granted leave in the United States from July 12 to Sept. 15, 1908.

Clark, J. A., capt., M. C., relieved from further duty at Ft. Oglethorpe, Ga., and temporary duty at Madison Barracks, N. Y., and ordered to proceed Aug. 1 to Ft. Liscum, Alaska, for duty.

Hanson, L. H., first lieut., M. C., when relieved at Ft. Liscum, Alaska, ordered to Seattle, Wash., for orders.

Grissinger, J. W., capt., M. C., relieved from duty at Ft. Ethan Allen, Vt., and ordered to proceed Aug. 1 to Ft. Egbert, Alaska, for duty.

Schmitter, F., capt., M. C., when relieved at Ft. Egbert, Alaska, ordered to Seattle, Wash., for orders.

Wyeth, M. C., Borden, Wm. C., Crosby, W. D., Stephenson, Wm., Mearns, E. A., Gandy, C. M., Phillips, J. L., Edie, G. L., Ewing, C. B., McCaw, W. D., and Kean, J. R., majors, M. C., ordered to report at Washington, D. C., Sept. 21, 1908, for examination for promotion.

Wall, F. M., contract surgeon, ordered from Ft. Oglethorpe, Ga., to Chickamauga Park, Ga., for duty.

Cattermole, C. A., contract surgeon, ordered from San Francisco, to Manhattan, Nev., for annulment of contract.

Jones, G. B., contract surgeon, ordered from San Francisco, to Ft. George Wright, Wash., for duty.

Johnson, C. W., contract surgeon, ordered from Ft. Des Moines, Iowa, to field duty in South Dakota.

Hart, W. L., contract surgeon, ordered to temporary duty at Washington Barracks, in addition to his duties at A. G. H., Washington, D. C.

Whinnery, J. C., dental surgeon, left Vancouver Barracks, Wash., for duty at Ft. Worden, Wash.; will subsequently visit in succession Ft. Flagler, Wash., Ft. Casey, Wash., and Ft. Ward, Wash.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ended July 1, 1908:

Geddings, H. D., asst.-surgeon-general, directed to proceed to Philadelphia, and Reedy Island Quarantine Station, for special temporary duty, on completion of which to rejoin his station at Washington, D. C.

Gassaway, J. M., surgeon, directed to proceed to Reedy Island Quarantine Station for special temporary duty, on completion of which to rejoin his station at Philadelphia.

Wertenbaker, C. P., surgeon, granted leave of absence for 3 days, from July 1, 1908.

Oakley, J. H., P. A. surgeon, granted leave of absence for 4 days.

Lavinder, C. H., P. A. surgeon, leave of absence granted for 4 days, from June 16, 1908, amended so as to grant him leave of absence for 3 days only.

Hobdy, W. C., P. A. surgeon, relieved from duty on examining board, San Francisco, July 6, 1908.

King, W. W., P. A. surgeon, detailed as recorder of examining board, San Francisco, July 6, 1908.

Goldberger, Joseph, P. A. surgeon, directed to proceed to Baltimore, Md., for special temporary duty, on completion of which to rejoin his station at the Hygienic Laboratory, Washington, D. C.

Goldberger, Joseph, P. A. surgeon, directed to proceed to Alexandria, Va., for special temporary duty, on completion of which to rejoin his station.

Roberts, Norman, asst.-surgeon, granted extension of leave of absence, for 3 days, from July 1, 1908.

Salmon, T. W., asst.-surgeon, granted leave of absence for 7 days, from June 28, 1908, under Paragraph 191, Service Regulations.

Drew, A. D., acting asst.-surgeon, granted leave of absence for 30 days, from July 3, 1908, without pay.

Friedman, H. M., acting asst.-surgeon, granted leave of absence for 28 days, from July 5, 1908.

Gray, Geo. E., acting asst.-surgeon, granted leave of absence for 5 days, from June 22, 1908.

Onuf, B., acting asst.-surgeon, granted leave of absence for 2 days, from June 20, 1908, on account of sickness.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 3, 1908:

SMALLPOX—UNITED STATES.

Alabama: Huntsville, June 5-18, 85 cases; Mobile, June 7-13, 1 case.

Arkansas: Texarkana, Dec. 1-June 15, present.
California: Los Angeles, June 7-30, 3 cases; Oakland, May 1-31, 12 cases; San Francisco, June 6-20, 11 cases.
District of Columbia: Washington, June 16-20, 7 cases.
Illinois: General, May 1-31, 288 cases; Chicago, June 14-20, 4 cases.
Indiana: General, April 1-30, 293 cases.
Kansas: General, April 1-30, 432 cases; Kansas City, June 8-15, 3 cases; Topeka, 3 cases.
Kentucky: Covington, June 21-27, 3 cases.
Louisiana: New Orleans, June 14-20, 6 cases.
Missouri: Conway, April 20-June 19, 29 cases; Kansas City, June 14-20, 2 cases; St. Louis, 1 case; St. Joseph, June 7-20, 9 cases.
Nebraska: Friend, April 13-June 18, 13 cases; South Omaha, June 7-13, 1 case.
New York: New York City, June 14-20, 1 case; Niagara Falls, 1 case.
North Carolina: General, April 1-30, 161 cases.
Ohio: Cincinnati, June 20-26, 4 cases; Dayton, June 14-20, 4 cases.
Tennessee: Nashville, June 14-20, 1 case.
Texas: Fort Worth, May 1-31, 9 cases; San Antonio, June 1-20, 2 cases.
Utah: General, May 1-31, 33 cases.
Virginia: Alexandria, June 25-27, 13 cases.
Washington: Spokane, June 7-20, 25 cases; Tacoma, June 8-14, 1 case.
Wisconsin: La Crosse, June 16-20, 4 cases.

SMALLPOX—FOREIGN.

Arabia: Aden, May 28-June 1, 2 deaths.
Austria: Galicia, May 24-30, 1 case.
Brazil: Rio de Janeiro, May 11-24, 364 cases, 153 deaths; Santos, May 3-10, 8 cases, 1 death.
Canada: Nova Scotia—Halifax, June 14-20, 6 cases.
Ceylon: General, April 1-30, 2 deaths.
China: Hong Kong, May 10-16, 3 cases, 1 death; Shanghai, May 3-24, 4 deaths.
Egypt: General, May 4-20, 77 cases, 10 deaths; Cairo, May 30-June 3, 6 cases, 2 deaths; Suez, May 6-20, 5 cases.
Formosa: May 2-9, 1 case.
France: Paris, May 31-June 6, 1 case; Marseille, May 1-31, 2 deaths.
Great Britain: Liverpool, April 30-June 6, 1 case.
India: Bombay, May 20-26, 31 deaths; Calcutta, May 10-16, 16 deaths.
Italy: Catania, May 22-June 11, 1 death; Naples, May 31-June 6, 2 cases; Palermo, May 24-June 6, 7 cases.
Japan: Nagasaki, May 17-24, 1 case; Osaka, May 10-16, 20 cases, 17 deaths.
Java: Batavia, May 10-16, 3 cases.
Mexico: Aguas Calientes, June 8-14, 3 deaths; Mexico City, June 10-16, 10 deaths; Monterey, June 8-14, 1 death.
Philippine Islands: Manila, May 3-June 9, 11 cases, 4 deaths.
Russia: St. Petersburg, May 17-30, 49 cases, 12 deaths; Warsaw, April 25-May 9, 2 deaths.
Spain: Barcelona, June 1-10, 1 death; Valencia, June 1-6, 17 cases.
Turkey in Europe: Constantinople, June 1-7, 7 deaths.

CHOLERA.

India: Bombay, May 20-26, 1 death; Calcutta, May 10-16, 109 deaths; Madras, May 16-22, 3 deaths.
Straits Settlements: Singapore, May 10-16, 1 death.

YELLOW FEVER.

Brazil: Manaos, May 26-30, 2 cases, 2 deaths; Para, May 31-June 6, 4 cases, 4 deaths.

PLAGUE.

Brazil: Rio de Janeiro, May 11-17, 4 cases.
China: Hong Kong, May 10-16, 88 cases, 65 deaths.
India: General, May 9-16, 6,720 cases, 5,708 deaths; Bombay, May 9-26, 148 deaths; Calcutta, May 9-16, 69 deaths.
Japan: Formosa, May 2-23, 357 cases, 272 deaths.
Peru: Callao, May 23-30, 2 cases, 1 death.
Siam: Tongkah, May 4, present.
Trinidad: to June 11, 6 deaths.
Turkey in Asia: Bagdad, June 7-13, 10 cases, 9 deaths.
Venezuela: Caracas, June 10-12, 5 cases, 1 death; La Guaira, June 16-19, 5 cases, 1 death.

Association News

DATE OF NEXT SESSION.

Announcement of the Date of the Next Annual Session at Atlantic City Next June.

The next annual session of the American Medical Association will be held at Atlantic City, N. J., June 8 to 11, 1909.

NEW MEMBERS.

The following is a list of new members of the American Medical Association for the month of June, 1908. Names marked with stars or daggers are of those who became members at the Chicago session; the dagger indicates that the name so marked was previously on the subscription list.

ALABAMA.

Coleman, S. L., Uniontown.
*Copeland, M. A., Birmingham.
Wilkinson, J. G., Catherline.
†Wyman, B. L., Birmingham.

ARIZONA.

Ayer, Ira, Cochise County.

ARKANSAS.

*Dickson, H. N., Paragould.
Floyd, C. J., Harrison.
*Grammer, J. B., Searcy.
Isom, Alphonso, Gould.
†Williams, F. M., Hot Springs.
*Wood, T. F., Uniontown.

CALIFORNIA.

Bine, Rene, San Francisco.
*Briggs, C. A., Pasadena.
*Crabtree, H. T., San Francisco.
Eckardt, A. O., Gualala.
Fisher, C. V., Antioch.
†McCarty, I. A., Los Angeles.
Nicholls, R. J., San Francisco.

COLORADO.

*Herrick, J. C., Denver.
Melvin, W. G., Ouray.
†Pattee, J. J., Pueblo.

CONNECTICUT.

Clifton, H. C., Hartford.
Lowe, H. R., Putnam.
*Whittemore, E. R., New Haven.

WASHINGTON, D. C.

Gannon, J. A., Washington.
Verbrycke, Jr., J. R., Washington.
Waring, J. H., Washington.

FLORIDA.

†Pittman, J. H., Jacksonville.

GEORGIA.

Burford, R. E. L., Brunswick.
Cole, J. E., Middleton.
Harrington, A. F., West Point.
†Matthews, M. F., Athens.
Respess, Herbert, Macon.
Smith, S. S., Athens.

ILLINOIS.

Adair, Sadie B., Chicago.
†Albers, Anna, Chicago.
Albright, I. N., Chicago.
†Alford, E. T., Chicago.
*Allen, T. G., Chicago.
†Armstrong, Kate E., Kewanee.
†Bacon, J. V., Chicago.
†Bailey, G. L., Oak Park.
†Bailey, H. V., Pekin.
†Baird, B. D., Galesburg.
Baker, G. J., Marion.
†Balderston, S. V., Evanston.
†Baldridge, S. T., Chicago.
†Barnard, H. S., Chicago.
*Baur, E. F., Chicago.
Bentele, Elizabeth, Chicago.
†Bergeron, J. Z., Chicago.
*Biehn, J. F., Chicago.
*Blackburn, W. R., Breeds.
†Blakelidge, Rose M., La Grange.
Bonthius, F. A., Chicago.
†Booth, F. H., Chicago.
Bouton, W. C., Waukegan.
†Bradley, E. H., Peoria.
†Brenner, F. T., Quincy.
†Breuer, E. J., Shabbona.
*Brian, J. R., St. Francisville.
*Brodrick, F. W., Chicago.
Brown, W. C., Chicago.
†Brucker, M. W., Chicago.
Brownfield, S. T., Galesburg.
†Burcky, W. E., Chicago.
†Burns, P. T., Chicago.
†Bush, Bertha E., Chicago.
†Camp, F. K., Chicago.
†Chancellor, P. S., Chicago.
†Chapin, C. W., Weldon.
*Chapin, H. A., White Hall.
*Christie, Edmund, Chicago.
†Christman, Paul, Kankakee.
Church, Harry S., Modoc.
†Clark, C. P., Chicago.
Clark, T. H., Golconda.
†Clark, T. H., Chicago.
*Cloyd, F. N., Westville.
*Cloyd, R. A., Catlin.
Cody, J. M., Tremont.
*Collins, H. O., Paloma.
†Cook, C. E., Mendota.
*Corcoran, A. L., Peoria.
Coughlin, F. J., Aurora.
†Coveny, M. J., Spring Valley.
Culbertson, O. J., E. St. Louis.
†Cunningham, W. J. M., Chicago.
†Curry, N. D., Chicago.
†Curtis, W. P., Chicago.
Dale, G. L. A., Chicago.
*Dale, H. W., McLeansboro.
†Dahlberg, A. V., Chicago.
*Danford, R. C., Pana.
*Deal, John, Riverton.
*DeVault, A. N., Chicago.
*Dicus, J. F., Streator.
*Dods, G. D. B., Chicago.
†Donkle, L. B., Chicago.
*DuBois, W. L., Chicago.
Duntley, G. S., Bushnell.
†Dvorak, G. M., Chicago.
†Dyche, G. B., Chicago.
*Eckard, E. M., Peoria.
†Elnarson, B., Chicago.
†Ellingwood, C. V., Chatsworth.
†Ellis, J. B., Chicago.
Ennis, Matilda E., Chicago.
*Epperson, J. C., Kansas.
†Erickson, C. A., Chicago.
*Eskey, F. W., Tuscola.
*Faith, Thomas, Chicago.
†Folckemer, H. R., Bowen.
†Ford, E. J., North Evanston.
†Foreman, C. B., Kane.
†Fouser, Hiram, Harvey.
†First, F. H., Rock Island.
*Fisher, J. C., Decatur.
*Fletcher, W. R., Joliet.
*Fricke, G. H., Park Ridge.
*Gabel, H. G., Aurora.
†Gillespie, E. S., Wenona.
*Gobble, H. W., Greenfield.
†Goldberg, J. B., Chicago.
Gorrell, T. J. H., Chicago.
†Gowen, G. A., Chicago.
Grant, O. P., Cantrall.
†Grattan, W. H., Shawneetown.
*Gray, W. L., Champaign.
†Green, T. S., Chicago.
†Grimmer, C. F., Pekin.
†Grulee, C. G., Chicago.
Gunn, Janet, Arlington Heights
*Haiselden, Harry J., Chicago.
*Haley, Richard, Chicago.
†Hall, E. A., Henry.
†Hammond, H. R., Chicago.
Harder, H. P., Evanston.
*Haushus, J. W., Chicago.
†Hayes, F. C., Camden.
†Heflin, H. N., Kewanee.
†Herrick, A. D., Chicago.
†Heym, A., Chicago.
†Hickman, J. M., Westville.
*Hill, J. H., Mechanicsburg.
*Hillemeyer, W. A., Chicago.
Hirsch, S., LaSalle.
Hoglund, E. J., Chicago.
Holmes, Jr. Bayard, Chicago.
†Holmes, E. M., Chicago.
†Holmes, P. H., Chicago.
†Hostetter, A., Rockford.
†Ikemire, J. A., Palestone.
*Illyes, L. R., Flat Rock.
*Jacobson, A. F., Chicago.
†Jacque, J. L., Chicago.
James, J. M., Henning.
†Jarvis, E. T., Macomb.
†Jenney, F. L. B., Chicago.
†Johnson, J. A., Dale.
*Jolley, L. B., Gurnee.
†Jones, H. O., Chicago.
*Just, G. H., Buckingham.
*Karreman, A. R., Chicago.
†Kelly, J. W., Chicago.
*Kemp, C. H., Lacon.
*Kepner, M. E., LaClede.
*Kidd, A. E., Quincy.
King, C. B., Chicago.
Kirkland, J. A., Cambridge.
†Klentgen, A. C., Chicago.
†Korb, M. C., Chicago.
Lacey, J. H., Albion.
†Lane, E. H., French Village.
†Langer, Carl, Chicago.
†Lebensohn, M. H., Chicago.
†Lewis, C. J., Chicago.
Lewison, M., Chicago.
*Limmer, G. L., Peoria.
*Lingle, W. E., Cobden.
†Lipshulch, G. U., Chicago.
†Lockie, G. D., Pontiac.
†Lorch, G. J., Chicago.
†Lowenthal, A. A., Kankakee.
*Luken, M. G., Chicago.
Lundgren, A. E., Chicago.
†MacCracken, W. P., Chicago.
†MacFarlane, W. A., Chicago.
†Maher, T. F., Chicago.
*Markley, G. W., Kingston.
*May, S. R., Mt. Zion.
*Mayes, W. E. G., Dawson.
*McCord, T. C., Paris.
*McFadden, L. A., Peoria.
McIlwain, Jr. Jas., Okawville.
†McGibbon, W. P., Chicago.
†McHugh, Thos., Chicago.
*McKinley, J. F., Chicago.
*McLaughlin, A. W., Chicago.
†McQuarrie, J. K., Chicago.
†Merritt, Elsie B., Princeville.
Meany, J. J., Chicago.
Meslrow, E. B., Chicago.
†Meyers, I. L., Chicago.

*Midgett, J. E., Flat Rock.
†Miller, A. B., Chicago.
Miller, C. A., Macon.
†Mock, H. E., Chicago.
†Montgomery, James, Chicago.
*Moore, C. R., Chicago.
*Moore, F. B., Chicago.
*Moore, Willis, Chicago.
†Mundt, G. H., Chicago.
*Musselman, J. T., Paris.
†Myers, C. S., Chicago.
†Myrick, A. E., Park Ridge.
†Nauman, B. J., Peru.
*Newcomer, Irving, Petersburg.
Nicholson, J. M., Chicago.
†Noble, Thos. A., Harvey.
Ogden, E. J., Chicago.
†O'Neill, J. W., Chicago.
†Packard, T. I., Lanark.
Palmer, M. J., Beardstown.
†Pattillo, R. S., Chicago.
Paulson, A. T., Chicago.
†Petersen, H. A., Dundee.
†Pierce, G. F., Chicago.
†Plummer, W., Farmington.
Poehls, J., Chicago.
†Pratz, F. D., Mowequa.
*Prince, J. A., Springfield.
Purves, A. M., Des Plaines.
†Rabe, W. L., Dwight.
†Ransmeier, R. E., Chicago.
†Redman, F. E., Chicago.
Reeder, W. G., Chicago.
*Reilly, Joseph, Chicago.
†Reinhardt, H. G. W., Chicago.
†Rembe, Reinhard, Chicago.
†Reynolds, G. W., Chicago.
Ricardo, D. E., Chicago.
†Riebel, E. C., Chicago.
†Rikli, A. R., Naperville.
*Reno, C. G., Streator.
Ritter, M. M., Chicago.
*Roane, J. Q., Carlyle.
Roberts, E. E., Mount Erie.
Rogers, A. E., Bloomington.
Rohrback, O. H., Chicago.
†Rudnick, Fred, Chicago.
Rudolphi G. W., Elliott.
*Ryan, Lawrence, Chicago.
†Ryman, H. D., Vernon.
†Sahud, Moses, Chicago.
*Sandy, T. H., Chicago.
†Schachter, J., Chicago.
Schaubel, G. M., Chicago.
Schenck, W. E., Pekin.
Schoenberg, A. J., Chicago.
†Schaffer, W. J., Chicago.
†Schmitz, Henry, Chicago.
*Schram, A. W., Chicago.
*Schreiber, G. F., Chicago Heights.
†Schroeder, G. H., Chicago.
†Schurtz, Carl, Streator.
*Scott, C. C., Princeton.
*Selby, E. H., Chicago.
Servoss, A. G., Havana.
Shaw, D. Lee, Chicago.
†Siebel, Jr., J. E., Chicago.
†Sloo, M. G., Chicago.
Smith, C. G., Chicago.
*Stearns, L. M., Oak Park.
Stiers, F. L., East Peoria.
Stevens, J. H., Wing.
†Stober, A. M., Chicago.
*Stoeffhaas, L. C., Chicago.
*Stokes, W. F., Chicago.
Stone, C. A., Belvidere.
†Storck, Wm., Chicago.
†Strauss, D. C., Chicago.
Streich, E. A., Chicago.
Sultan, George, Chicago.
Taylor, I. H., Springfield.
*Thornton, C. M., Elkville.
*Timerman, H. E., Chicago.
Timmerman, E. V., Chicago.
*Titzel, W. R., Chicago.
*Trueblood, R. R., Lawrenceville.
†Van Dellen R. L., Chicago.
†Van Hoosen, Bertha, Chicago.
*Wade, C. A., Chicago.
*Walker, T. E., Gifford.
Wallace, H. R., Chicago.
†Waller, J. D., Oak Park.
†Walsh, J. H., Chicago.
†Walters, C. H., Springfield.
Wardle, H. W., Chicago.
†Waterman, S. A., Chicago.
*Waterman, W. M., Chicago.
†Watson, J. B., Litchfield.
†Waugh, J. F., Chicago.
*Wedel, Gustav, Chicago.
†Werelius, Axel, Chicago.
†West, W. B., Chicago.
Whamond, A. A., Chicago.
Wharton, J. F., Homewood.
†Wicks, Seth, Chicago.
White, J. C., Seatonville.
*Wickland, C. A., Chicago.
*Wikoff, C. P., Emington.
*Wilcox, C. A., Amboy.
†Wissig, S. L., Chicago.
*Wistein, Rosina R., Chicago.
†Woods, A. W., Morgan Park.
†Woodworth, S. A., Park Ridge.
Woof, J. T., Chicago.
†Wright, N. A., Manito.
†Wynekoop, F. E., Chicago.
*Yeates, W., Bonfield.
†Zoller, C. H., Granite City.

INDIANA.

*Austin, F. H., North Madison.
Biddle, F. M., Battle Ground.
†Borley, E. R., South Bend.
Bounnell, H. M., Waynetown.
†Bradfield, John, Logansport.
†Brokaw, R. E., Portland.
*Buchanan, W. A., Hammond.
Caliane, M. D., Flora.
*Carnelley, J. H., Kokomo.
Chittick, A. J., Burlington.
*Clevenger W. F., Indianapolis.
†Cochran, R. W., Madison.
Collier, T. E., Brook.
*Cromer, L. G., Union City.
*Darroch, W. P., Cayuga.
†Dewey, F. U., Elkhart.
†Dielman, F. C., Fulton.
*Dobbins, A. O., Wheeler.
Domer, W. A., Sabash.
Egan, B. W., Carroll.
†Englerth, P. O., North Judson.
Evans, H. M., Valparaiso.
Fargher, J. H., Laporte.
Finney, C. J., Attica.
†Frost, R. F., Huntington.
†Gilson, E. A., Covington.
*Grim, G. B., Oakland City.
*Hackley, R. P., Medaryville.
†Hagenbaugh, E. J., Elkhart.
*Hamilton, Allen, Fort Wayne.
†Hays, Woodward, Albion.
Hill, H. B., Logansport.
†Hobbs, Alice L., Indianapolis.
Hunn, M. F., Shipshewana.
*Hunter, T. E., Versailles.
Ingalls, A. T., Elkhart.
*Jones, J. F., Hammond.
†Jones, J. J., Medaryville.
Jones, M. C., Converse.
*Kremer, N. A., Madison.
Leiter, W. S., Claypool.
†Lent, E. J., South Bend.
Levering, G. P., Lafayette.
*Loomis, Chas., Vevay.
*Lorenz, J. W., Evansville.
†McCaslin, C. N., Earl Park.
†McConnell, Joseph, Terre Haute.
*McDonald, W. B., New Augusta.
†McKeeman, R. B., Fort Wayne.
†Miller, C. A., Princeton.
Milligan, J. W., Michigan City.
†Miranda, W. F., Walkerton.
*Mitchell, E. E., Bedford.
*Morris, J. E., Indianapolis.
†Mumford, E. B., Indianapolis.
Nebeker, Eva, Covington.
†Peck, W. M., South Bend.
*Perry, C. H., Lewis Creek.
Perry, Ira E., Bippus.
†Packard, C. W., Gary.
*Payne, A. T., Terre Haute.
Peter, E. L., Flora.
*Poland, U. G., Muncie.
†Powell, N. B., Marion.
†Proudfit, L., Osceola.
†Radcliffe, F. E., Bourbon.
†Redding, J. L., Bluffton.
*Robison, Elwood, Rossville.
*Robison, J. E., Frankfort.
†Ross, David, Indianapolis.
Saalman, J. E., Eckerty.
*Sanders, I. M., Greensburg.
*Shafer, Winfield, Rochester.
*Shepherd, G. W., Red Key.
Shoaf, F. A., Veedersburg.
Shultz, J. B., Logansport.
†Snyder, J. W., Michigan City.
†Spear, R., East Chicago.
*Sprowl, J. S., Warren.
†Strange, J. W., Loogootee.
*Stormont, R. M., Stewartsville.
†Swezey, H. N., Marion.
†Taviner, R. Q., Huntington.
†Taylor, J. E., Leopold.
Thompson, N. H., Wabash.
Vandivier, H. R., Clay City.
†Van Kirk, G. H., Kentland.
Van Reed, Earl, Lafayette.
Wagner, E. P., South Bend.
*Whitlatch, Bine, Pierceville.
*Wood, H. D., Angola.
†Work, Jr., J. A., Elkhart.
†Yocum, M. G., Mentone.

IOWA.

Acher, A. E., Ft. Dodge.
†Applegate, C. F., Mt. Pleasant.
Arthur, W. R., Greene.
†Bamford, E. E., Centerville.
*Barnes, F. L., Oskaloosa.
*Beardsley, D. E., Cedar Rapids.
†Becker, W. L., Dubuque.
†Bliss, C. S., Renwick.
*Bowman, E. S., Davenport.
†Brandt, G. C., Denison.
*Brewer, M. T., De Soto.
†Brinkman, J. E., Waterloo.
Brownson, J. D., Monona.
†Calbreath, C. B., Lineville.
†Carr, C. W., Denison.
†Chase, C. S., Iowa City.
†Cobb, H. A., Dunlap.
†Conmey, R. M., Sergeant Bluff.
*Criley, B. H., Dallas Center.
*Daly, J. J., Charles City.
*Dean, W. F., Osceola.
†Dodds, W. E., Richland.
*Duffin, W. L., Guttenberg.
*Engle, Perry, Newton.
*Ficke, E. O., Davenport.
*Fitz Jerrell, H. B., Elkport.
†Gillespie, H. S., Mapleton.
Gleason, B. F., Arthur.
†Harris, W. A., Centerville.
†Hill, M. W., Mt. Vernon.
*Hurst, W. N., Ottumwa.
†Jeffries, W. G., Leon.
*Johnston, T. H., Spencer.
†Jones, C. R., Griswold.
†Kellogg, O. A., Blairsburg.
†Kirschner, H. E., Iowa City.
†Kisor, F. H., Kalona.
†Klein, J. L., Muscatine.
†LaForce, E. F., Burlington.
Lamboch, Frederick, Davenport.
*Leir, C. N. O., Des Moines.
†Lewis, Byron, Jewell Jct.
Lewis, S. J., Columbus City.
*Mammen, G. H., Le Mars.
*Matthey, Carl, Davenport.
*McCray, W. R., Rockford.
McGlone, F. E., Mason City.
†McKane, J. W., Lawler.
*McLaughlin, P. B., Sioux City.
†McMillan, E. C., Hudson.
†Miller, G. E., Sanborn.
*Minassian, H. A., Des Moines.
*Minthorn, M. F., Castana.
*Myers, E. M., Boone.
†Newell, F. W., Ottumwa.
Newell, W. C., Ottumwa.
†Page, A. C., Des Moines.
*Parriott, R. P., Des Moines.
*Payne, J. E., Richland.
†Pearson, Wm. W., Des Moines.
Peters, J. A., Oxford.
*Peters, R. A., Tipton.
†Pyles, R. H., Hudson.
*Quinn, Edw., Martinsburg.
†Rayner, H. W., What Cheer.
Schmidt, B. H., Davenport.
*Sherbon, J. B., Colfax.
*Sigworth, H. W., Waterloo.
Sinning, Augustus, Iowa City.
†Small, W. B., Waterloo.
†Smith, S. J., Iowa City.
†Starr, C. F., Mason City.
*Steinle, H. F., Burlington.
Sterns, W. L., Mason City.
†Storie, Jr. D. Q., Charlton.
Swale, C. M., Mason City.
†Tallman, C. C., Fairfield.
†Thielen, M. H., Grundy Center.
†Thompson, Benj., Tama.
Tilden, W. C., Stanwood.
*Tinley, M. A., Council Bluffs.
Wanamaker, E. E., Hamburg.
West, G. H., Armstrong.

KANSAS.

Ball, S. E., Mapleton.
*Carlile, J. B., Leon.
†Cornell, H. M., Kansas City.
*Davis, J. E., Ottawa.
*Gardner, M. N., Greenleaf.
*Glasscock, S. S., Kansas City.
†Jones, L. L., Altoona.
Moberg, Arthur, Pittsburg.
†Patton, C. L., Oepe.
†Poole, J. G., Kansas City.
*Sams, L. V., Topeka.
†Von Trebra, R. L., Chetopa.
Wetherbee, Chas., Edna.

KENTUCKY.

*Armstrong, M. W., Olive Hill.
*Arthur, Macaulay, Middlesboro.
*Clifford, C. M., Cynthiana.
*Duvall, H. C., Millwood.
*Givan, S. L., Spring Lick.
*Gower, C. M., Trenton.
*Green, J. T., Litchfield.
*Jones, J. C., Buffalo.
†Kelsall, O. H., Louisville.
*Moss, M. M., Franklin.
Pace, J. E., Scottsville.
*Reynolds, J. F., Mt. Sterling.
†Wheeler, C. L., Lexington.
*Zaring, A. M., Smithfield.

LOUISIANA.

†Allen, C. W., New Orleans.
Haspel, M. D., New Orleans.
McGrane, C. J., New Orleans.

MARYLAND.

Dudley, N. S., Church Hill.
Perkins, E. S., Baltimore.
Rollins, C. D., Baltimore.

MASSACHUSETTS.

Bowman, F. R., Boston.
Champion, M. E., Arlington.
Van Nuys, F., Weston.
Wardwell, J. K., Boston.

MICHIGAN.

†Baird, T. A., Bay City.
†Boys, C. E., Kalamazoo.
*Braden, G. M., Scotts.
†Brown, R. W., Bay City.
†Cahill, L. L., Mendon.
†Cameron, W. C., White Pigeon.
†Chivers, R. W., Jackson.
†Chopoton, E. A., Detroit.
*Cooper, E. M., Carleton.
†Cummings, R. B., Wayne.
Crary, G. H., Ann Arbor.
De Kraker, J. M., Grand Rapids.
†Dodge, W. H., Hancock.
*Foster, R. F., Bear Lake, Mich.
†Frazier, H. H., Allen.
†Garner, G. L., Lansing.
†Gauntlett, J. C., Elk Rapids.
*Gauss, C. B., Palo.
†Gubbins, R. M., Ceresco.
*Hagadorn, A. D., Lansing.
†Hoover, Harold, Alamo.
Howard, J. J., Detroit.
*Kassabian, M. H., Coopersville.
Leitch, A. E., Saginaw.
†Libby, E. M., Iron River.
*Merriman, H. H., Grayling.
†Miller, G. D., Cadillac.
Miller, H. C., Hillsdale.
*Moore, G. W., Munger.
Morse, Jason, Pontiac.
†Mortensen, M. A., Battle Creek.
Newark, W. E., Charlotte.
Paterson, E. W. E., Grand Rapids.
Patrick, O. H., Port Huron.
*Pratt, C. G., Sparta.
Rice, E. D., Flint.
†Rowe, B. B., Saginaw.
†Sherman, G. H., Detroit.
†Simpson, H. L., Detroit.
†Stephenson, F. T. F., Detroit.
*Stevenson, A. T., Bay City.
†Stewart, L. H., Kalamazoo.
†Swantek, C. M., Bay City.
*Upjohn, W. E., Kalamazoo.
Vaughan, Cecil, Detroit.
†Vennema, H. A., Menomonee.
†Walker, R. A., Menomonee.
†Williams, A. H., rand Rapids.
†Youngquist, O. G., Marquette.

MINNESOTA.

*Blacklock, S. S., Hibbing.
†Boleyn, E. S., Stillwater.
Corbett, J. F., Minneapolis.
†Cremer, M. H., Red Wing.
†Crume, G. P., Minneapolis.
Donnelly, I., St. Paul.
†Eklund, J. J., Duluth.
†Fahey, E. W., Duluth.
*Fleming, James, Cloquet.
†Freeman, C. D., St. Paul.
Jones, E. M., St. Paul.
Larson, L. A., Montevideo.
*MacCarty, W. C., Rochester.
*Malchow, C. W., Minneapolis.
†Matthews, Justus, Rochester.
Mitchell, F. J., Richland Center.
†Olander, J. E. E., St. Paul.
*Parker, E. H., Minneapolis.
Peddicord, Harper, St. Paul.
*Rollins, F. H., St. Charles.
†Schneider, J. P., Green Isle.
†Stacy, Leda J., Rochester.
†Taylor, C. U., Duluth.
†Watson, J. A., Minneapolis.
†Wheat, F. C., Marshall.
*Whiting, A. D., St. Cloud.
*Williams, John, Lake Crystal.

MISSISSIPPI.

*Day, E. C., Bay St. Louis.
Kohlheim, Louis, Booneville.
†Shands, H. R., Jackson.

MISSOURI.

*Beckham, Genevieve S., St. Louis
*Bellows, G. E., Kansas City.
Banker, O. H., St. Louis.
*Burke, C. L., Kansas City.
†Child, S. P., Kansas City.
†Coffey, W. H., Kansas City.
*Epperly, R. G., Prairie Hill.
Esselbruegge, F. C., St. Louis.
*Fergerson, J. W., St. Joseph.
*Gray, A. L., St. Joseph.
†Hale, J. W., Greenville.
†Harris, D. L., St. Louis.
*Humfreville, D. L., St. Joseph.
Kern, B. C., St. Louis.
*Kessler, S. F., St. Joseph.
†Leavy, C. A., St. Louis.
*McKillip, O. L., Kansas City.

†McMurry, M. C., Paris.
*Neer, C. S., Springfield.
Newman S. A., Cassville.
*Owens, M. J., Kansas City.
†Parce, A. D., St. Louis.
Parker, H. F., Warrensburg.
*Payne, H. C., Paris.
†Redwine, J. T., Doniphan.
†Roselle, T. A., Palmyra.
*Sanford, S., Palmyra.
*Schmid, W. F., St. Joseph.
*Sheley, O. C., Independence.
*Smith, J. D., Shelbina.
*Smith, W. P., Troy.
*Sneed, C. M., Jefferson City.
*Straus, Leon, St. Louis.
*Swahlen, P. H., St. Louis.
*Tout, B. B., Archii.

NEBRASKA.

*Demaree, E. W., Roca.
†Dunn, A. D., Omaha.
†Farley, B. F., York.
Fuller, J. A. Jr., Uehling.
*Graham, F. H., Lincoln.
†Hollister, R. R., Omaha.
†Impey, Charles, Omaha.
*Ira, G. B., Lynch.
Lemar, F. A., Newman Grove.
†Miller C. J., Ord.
*Oelke, E. H., Pierce.
Rhoden, R. H., Fremont.
Sachs, A., Omaha.
*Shaw, L. M., Osceola.

NEW HAMPSHIRE.

*Abbott, W. H., Hillsboro.
Kelso, W. L., Hillsboro.

NEW JERSEY.

Carter, Helen L., Newark.

NORTH CAROLINA.

*Battle, J. T. J., Greensboro.
Caldwell, M. M., Wilmington.
*Cotton, C. E., Black Mountain.
Griggs, W. T., Poplar Branch.
Kapp, H. H., Winston-Salem.
Kirkpatrick, L. R., Maxton.

NORTH DAKOTA.

†Rindlaub, M. P., Jr., Fargo.
†Westley, M. D., Cooperstown.

NEW YORK.

Bachmann, G. W., Rochester.
Brown, A. J., Rome.
Bentz, G. H., Brooklyn.
Daly, W. S., Ogdensburg.
*Dowd, P. M., Oswego.
†Dwyer, W. M., Amsterdam.
Fabricius, J. R., New York City.
*Fairbairn, J. F., Buffalo.
Foster, A. B., Fonda.
Foster, J. B., Webster.
Hazen, Roland, Brentwood.
*Hicks, J. S., Allegany.
Judson, C. H., Dobbs Ferry.
Junge, B. W., New York City.
Le Fevre, Caroline H., Brooklyn.
†Ogilvy, Charles, New York City.
O'Mara, T. J., New York City.
†Shirk, G. W., Cornwall on Hudson
Sill, W. M., Jamestown.
Soble, N. H., Elmira.
*Stewart, C. M., Hume.
Torrey, Edward, Olean.
Travell, C. H., Troy.
†Van Bender, J. L., Penn Yan.
†Wright, Thew, Buffalo.

OHIO.

Allaman, W. F., Dayton.
Allen, F. Y., Cleveland.
†Bausman, S. M., Pleasant Hill.
Bounds, H. L., Carroll.
†Brewer, L. A., Toledo.
†Bull, Maud L., Marion.
Buxton, J. W., Howard.
Coy, H. C., Napoleon.
†Davidson, H. S., Barberton.
Deam, J. M., Vandalia.
*Dunton, O. H., Circleville.
†Eastman, W. H., Fredericktown.
Elliott, R. W., Cleveland.
†Fry, R. D., Cleveland.
†Grubb, E. W., Payne.
Haefele, G. L., Cleveland.
Handmacher, B. B., Cleveland.
*Hart, W. E., Elyria.
Hays, C. J., Akron.
Helleman, J. H., Waynesfield.
†Heimlich, Daniel, Cleveland.
*Hill, W. C., Cleveland.
Holmes, E. S., Plain City.
Howland, J. S. Plain City.
Huggins, T. A., Sparta.
†Jones, G. H., Toledo.
Kohler, A. A., Akron.
†Kramer, J. D., Dayton.
Lavanture, L. A., Buckeye City.
†Lee, R. N., Mt. Blandchard.
McDowell, J. R., Zanesville.
†McKendree, M. A., Bowling Green.
*McKibben, J. T., Cincinnati.
McKinzie, C. D., Lancaster.
McNamara, F. X., Cleveland.
McVety, A. F., Toledo.
†Miller, J. C., New Bavaria.
*Neal, C. A., Norwood.
Pinkerton, W. L., Galloway.
Portmann, O. E., Canton.
Postle, R. A., Ashville.
Rowers, H. G., Chickasaw.
Reed, F. E., Cavett.
*Richards, C. C., Bellevue.
Richardson, F. A., Huntsville.
Rickey, L. D., Chillicothe.
Roller, W. C., Willshire.
*Ross, C. H., Alliance.
Sauer, W. W., Madisonville.
Shuman, J. C., Akron.
Shook, J. W., Canal Winchester.
†Silver, Harry, Hamilton.
Sloan, H. G., Cleveland.
Stadler, C. E., W. Cairo.
Stamm, John, Jacksonville.
Stone, C. W., Cleveland.
Taggart, H. D., Akron.
†Todd, H. D., Akron.
Trout, G. B., Duncan Falls.
†Underwood, E. S., Akron.
†Van Fossen, J. A., Columbus.
Waldron, L. P., Akron.
Welch, Mina G., Columbus.
Wilson, W. A., Gahanna.
Yoder, H. E., Cleveland.

OKLAHOMA.

*Bolton, W. D., Clinton.
Childs, H. C., Noble.
Diehl, C. H., Purdy.
Hinson, T. B., Thomas.
Marshall, J. W., Shawnnee.
†Mraz, J. Z., Prague.
Rogers, F. W.
†Rogers, McLain, Geary.
Vanderpool, J. M., Calvin.

PENNSYLVANIA.

Allen, W. H., Pittsburg.
Auchmuty, J. E., Marvd.
Beck, J. M., Alexandria.
Blair, H. A., Curwensville.
†Blair, A. C., Pittsburg.
Craig, Ford B., Pitcairn.
Crosby, W. S., Philadelphia.
†Edwards, Jr. O. M., Pittsburg.
†Jobson, G. B., Franklin
Kriebel, Asher G., Lynnville.
*McCready, E. B., Pittsburg.
†McDowell, H. F., Franklin.
*Murphy, J. C., York Haven.
Nichols, H. J., Bradford.
Owens, C. K., Pittsburg.
*Roth, A. H., Erie.
Snodgrass, Bruce, Beaver Falls.
Steinbock, F. W., Philadelphia.
*Thompson, E. V., Franklin.
West, S. L., Philadelphia.
Wood, W. A., Philadelphia.

RHODE ISLAND.

Porter, L. B., Providence.

SOUTH CAROLINA.

Wannamaker, T. E. Jr., Cheraw.
Baker, Mary R., Columbia.

SOUTH DAKOTA.

†Ferguson, W. J., Milbank.
*Foxton, J. L., Huron.
*Freeburg H. M., Watertown.
†French, H. E., Vermilion.
†Mead, L. C., Yankton.

TENNESSEE.

*Caldwell, B. D., Milan.
*Eve, Duncan, Nashville.
Green, J. H., Trimble.
*Jones, G. R., Orlinda.
*King, J. M., Nashville.
Overton, John, Nashville.
Rogers, K. E., Ducktown.
*Sifford, W. R., Nashville.
†Swink, W. T., Milan.
†Witt, W. H., Nashville.
*Wood, E. G., Nashville.

TEXAS.

Dycus, Earl, Juno.
*Jackson, R. R., Dallas.
Leach, R. W., Bighill.
Mayo, O. N., McDade.
Ruhl, J. H., Galveston.
Schultz, W. M., Georgetown.
Silver, C. M., Alvard.

VIRGINIA.

Bosher, R. S. Jr., Richmond.
Connelly, E. H., Alberta.
Kellam, W. F., Onley.

WASHINGTON.

Lazelle, H. G., Seattle.

WEST VIRGINIA.

*Barlow, C. A., Benwood.
*Bush, A. B., Weston.
*Holden, W. H., Clarksburg.
Taylor, E. R., Bemis.

WISCONSIN.

†Bear, W. G., Monroe.
*Blackbourn, F. E., Beetown.
*Brett, F. N., Green Bay.
Brockway, F., Oshkosh.
*Cavaney, James, Milwaukee.
*Donohue, M. J., Antigo.
*Edwards, W. M., Manston.
*Ehlert, E. H., Hartford.
*Greenwood, S. D., Neenah.
†Fosse, Benj., Beloit.
Hopkins, F. G., Valders.
†Hopkinson, Daniel, Milwaukee.
†Hoag, H. J., Cudahy.
Huntington, S. D., Green Bay.
*Hyslop, F. R., Whitewater.
Kelsey, Kate, Cable.
†Malone, F. A., Waterford.
Matter, L. E., Lake Geneva.
*Moore, E. E., Merrillan.
Nott, G. W., Racine.
Olsen, A. K., Ettrick.
†Parke, Geo., Sylvan.
*Schoen, R. E., Beaver Dam.
†Schwendener, J., Milwaukee.
†Spears, T. R., Washburn.
†Searle, C. H., Palmyra.
†Stirn, F. J., Cudahy.
†Sweetman, R. H., Green Bay.
†Tarnutzer, B. C., Beaver Dam.
*Walbridge, J. S., Berlin.
*Wallace, Chas., Chippewa Falls.
*Wells, A. L., Clear Lake.
*Wintermute, C. E., Kilbourn.

WYOMING.

†Fox, G. A., Cheyenne.

Medical Education and State Boards of Registration

COMING EXAMINATIONS.

NEW MEXICO Board of Health and Medical Examiners, The Capitol, Santa Fe, July 13-14. Secretary, Dr. J. A. Massie, Santa Fe.

ARKANSAS Regular Board of Medical Examiners, State Capitol Bldg., Little Rock, July 14. Secretary, Dr. F. T. Murphy, Brinkley.

ARKANSAS Homeopathic Board of Medical Examiners, Little Rock, July 14. Secretary, P. C. Williams, Texarkana.

ARKANSAS Eclectic Board of Medical Examiners, Little Rock, July 14. Secretary, Dr. A. J. Widener, Little Rock.

CONNECTICUT Homeopathic Medical Examining Board, New Haven, July 14. Secretary, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

CONNECTICUT Eclectic Medical Examining Board, Hotel Garde, New Haven, July 14. Secretary, Dr. T. S. Hodge, 16 Main St., Torrington.

CONNECTICUT Regular State Medical Examining Board, City Hall, New Haven, July 14-15. Secretary, Dr. Charles A. Tuttle, 196 York St., New Haven.

DISTRICT OF COLUMBIA Board of Medical Supervisors, Washington, July 14. Secretary, Dr. George C. Ober, 210 B. St., S.E., Washington.

WEST VIRGINIA State Board of Health, Charleston, July 14-16. Secretary, Dr. H. A. Barbee, Pt. Pleasant.

MASSACHUSETTS Board of Registration in Medicine, State House, Boston, July 14-16. Secretary, Dr. Edwin B. Harvey, Room 159, State House, Boston.

VERMONT State Board of Medical Registration, Burlington, July 14-16. Secretary, Dr. W. Scott Nay, Underhill.

WISCONSIN Board of Medical Examiners, Park Hotel, Madison, July 14-16. Secretary, Dr. J. V. Stevens, Jefferson.

NEW HAMPSHIRE State Board of Medical Examiners, State Library, Concord, July 15-16. Regent, Mr. H. C. Morrison, Concord.

Cincinnati Colleges Merge.

We are informed that the long-contemplated merger between the Miami Medical College and the Medical College of Ohio, both of Cincinnati, has finally been consummated; the new college thus formed will be the Medical Department of the University of Cincinnati. Already extensive plans have been made to develop the school. A professor of pathology is to be secured at a salary of $4,000 a year, who will also be in charge of the extensive laboratories at the Cincinnati Hospital. The school will have full use of the clinical material of the Cincinnati Hospital, which at present has nearly 600 beds. Within the next few years a new hospital is to be erected at a cost of about $3,000,000. This merger ends the rivalry which has existed between the two faculties for many years. It is noteworthy that they have been willing to lay aside their differences, and even to make personal sacrifices in order that Cincinnati might have one strong medical college of high standard. The new school should receive the support of the alumni of the two schools, as well as of the medical profession generally.

Errata in State Board Statistics.

Some errors in percentages occurred in the State Board Statistics published in THE JOURNAL, May 30, 1908. The percentage for Howard University in the 18th line, on page 1857, should be 23.5 instead of 41.2. The same correction should be made in Table K, on page 1846. On page 1844, in Table G, the percentage of failure for the University of Pennsylvania, "in other states," should be 1.6 instead of 6.2.

Rhode Island Requires Graduation.

An amendment to the Rhode Island medical practice act provides that every applicant for license hereafter must hold a diploma from a reputable medical college and gives the board the right to refuse recognition to medical colleges which are not doing satisfactory work.

California April Report.

Dr. Charles L. Tisdale, secretary of the Board of Medical Examiners of the State of California, reports the written examination held at San Francisco, April 7-9, 1908. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 58, of whom 34 passed and 24 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Cooper Med. Coll.	(1907)	79
University of California	(1907)	79.2, 81.4
University of Southern California	(1906) 82.5; (1907)	76, 80
College of P. and S., San Francisco	(1902) 75.2; (1907)	78.6
California Med. Coll.	(1902)	75.7
College of P. and S., Los Angeles	(1907)	78.3
Gross Med. Coll.	(1891)	*76
Yale Medical School	(1894)	80.5
Georgetown University	(1900)	75.7
Northwestern University Medical School	(1904)	81.8
College of P. & S., Chicago	(1906) 78.4; (1907)	75, 81.1
Rush Med. Coll.	(1903)	75
Kansas Med. Coll.	(1892)	*75
Medical School of Maine	(1895)	*83.3
Harvard Med. School	(1906)	86.9
University of Michigan	(1903)	82.5
Detroit College of Med.	(1878)	*77.1
University of Missouri	(1897)	*74
Long Island Coll. Hosp.	(1905)	80.8
Eclectic Med. Inst., Cincinnati	(1891)	*78.1
Omaha Medical College	(1892)	*82.3
College of P. and S., New York	(1900)	80.4
New York Homeo. Medical College	(1902)	80.8
Medico-Chirurgical College of Philadelphia	(1904)	77.6
University of Pennsylvania	(1890) 79; (1895)	82
University of Toronto, Ontario	(1907)	77.7
McGill University, Quebec	(1902)	84.7

FAILED.

College of P. and S., San Francisco, (1902) 61.6; (1906) 68.2, 71.8, 74; (1907) 53.4, 66.4, 73.7.
University of Southern California (1902) 66.6; (1904) 71.2; (1907) 73.6.
Cooper Medical College (1903) 70.7; (1907) 69.9, 70
College of P. and S., San Francisco (1902) 61.6
Howard University, Washington (1891) 30.4
University of Iowa (1907) 72.6
Louisville Medical College (1897) 71.6
University of Michigan, (1879) 82.6; (1891) 76.3; (1892) 74.3
Barnes Medical College (1904) 68.9
Miami Medical College (1903) 70.6
Medical College of Ohio (1871) 17.3
Nagasaki Medical College, Japan (1902) 20.8

*Five per cent. to be added for each ten years of practice.

Georgia May Report.

Dr. E. R. Anthony, secretary of the Regular Board of Medical Examiners of Georgia, reports the written examinations held at Atlanta and Augusta, May 4-5, and May 5-6, 1908, respectively. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 80.

At the examination held at Atlanta, May 4-5, the total number of candidates examined was 96, of whom 87 passed and 9 failed. One candidate withdrew from the examination. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Atlanta College of P. and S., (1908) 81, 82, 83, 83, 84, 84, 84, 84, 85, 85, 86, 86, 87, 88, 88, 88, 88, 88, 89, 89, 89, 89, 90, 90.		
Atlanta School of Medicine, (1908) 80, 80, 80, 81, 81, 81, 81, 82, 82, 82, 83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 85, 85, 85, 85, 86, 86, 87, 87, 88, 89, 90, 90, 91.		
International Med. Miss. Coll.	(1908)	82
Tulane University of Louisiana	(1907)	87
University of Louisville	(1907)	84, 87
Kentucky University	(1906)	82
Baltimore Med. Coll.	(1907)	83
Baltimore University	(1904)	82
Leonard School of Medicine	(1906)	83
Western Pennsylvania Med. Coll.	(1894)	88
University of Tennessee	(1908)	85, 85
Chattanooga Med. Coll., (1896) 83; (1901) 83; (1903) 80; (1904) 80; (1907) 80.		
Meharry Med. Coll., (1906) 82; (1908) 82, 84, 84, 85, 85, 85, 85, 89, 92.		
University of Nashville	(1908)	82, 88
University of the South	(1904)	85
College of P. and S., Memphis	(1907)	81

FAILED.

Atlanta School of Med.	(1908)	73, 74, 77, 79
International Med. Miss. Coll.	(1908)	77, 79
Maryland Med. Coll.	(1906)	78
College of P. and S., Baltimore	(1890)	60
Central University, Medicine and Science, of New Jersey*		76

* This college is said to have been fraudulent and existed solely for the purpose of peddling diplomas. The charter was revoked in 1891.

At the examination held at Augusta, May 5-6, the total number of candidates examined was 36 of whom 33 passed and 3 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Medical College of Georgia, (1908), the grades of 80 and 81 were reached by one each, 82 by four, 83 by six, 84 by eight, 85 by two, 86 by four, 87 by two, and 88 and 93 by one each.		
Medical College of Indiana	(1897)	84
Medical College of South Carolina	(1892) 93; (1908)	85

FAILED.

Medical College of Georgia	(1908)	79
Gate City Med. Coll.	(1908)	76, 79

Louisiana May Report.

Dr. F. A. LaRue, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, May 21-22, 1908. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 153 of whom 131 passed and 22 failed. The following colleges were represented:

PASSED. College.	Year. Grad.	Per Cent.
Birmingham Med. Coll.	(1908)	78
Atlanta College of Phys. and Surg.	(1900) 82.6; (1907)	81.6
Louisville Med. Coll.	(1906) 76.2; (1907)	80.4
Flint Med. Coll.	(1908) 76.8, 79.8, 78.8, 81, 81.6, 83	
Tulane University of Louisiana, (1891) 82; (1902) 82.6; (1905) 76.8; (1906) 75; (1908) 76, 76.4, 78, 79, 79.6, 80, 80.4, 80.8, 80.8, 81, 81, 81.2, 81.4, 81.6, 81.8, 82.4, 82.8, 83.2, 83.4, 83.4, 83.6, 83.6 83.6, 83.8, 83.8, 83.8, 83.8, 84, 84.4, 84.6, 84.8, 84.8, 84.8, 85.2, 85.4, 85.4, 85.4, 85.6, 85.6, 85.8, 85.8, 85.8, 85.8, 86, 86, 86, 86, 86.2, 86.2, 86.4, 86.4, 86.8, 86.8, 86.9, 87, 87, 87.2, 87.2, 87.2, 87.6, 87.8, 87.8, 87.8, 88, 88.2, 88.4, 88.4, 88.6, 88.6, 88.8, 88.8, 89, 89, 89.4, 89.8, 90.2, 90.6, 91.2.		
University of Maryland	(1906)	84.4
Saginaw Valley Med. Coll.	(1902)	77.6
Leonard School of Med.	(1908) 84, 84.6, 85.6	
Meharry Med. Coll.	(1907) 81; (1908)	79.6
Memphis Hospital Med. Coll. (1907) 82.2; (1908) 78.4, 78.6, 78.6, 78.6, 80.6, 81, 81.6, 82.2, 82.2, 82.8, 83, 83, 83.6, 85.6, 87.6		
University of Nashville (1907) 84.6, 87.6; (1908) 77.8, 79.6, 82.4, 84.6, 88.6.		
University of the South	(1907)	78.4
University of Tennessee	(1908)	82.2
University of Texas	(1907)	85.
College of P. and S., Dallas	(1905) 78.8; (1908) 76.8, 77	
University of Virginia	(1907)	86.8
University of Palermo, Italy	(1900)	92.2

FAILED.

Flint Med. Coll., (1902) 71.2; (1905) 66.6, 74.2, (1908)		72.4
Tulane University of Louisiana	(1901) 66.8; (1908)	72.6
Dartmouth Med. Coll.	(1881)	68.2
Memphis Hosp. Med. Coll. (1893) 69.8; (1908) 66.6, 73.8, 70.4, 72.4		
University of Nashville	(1908)	69.8
University of the South	(1907) 49.6, 64.2, 71	
Meharry Med. Coll.	(1907) 69.4, 73.4	
College of P. and S., Dallas	(1908) 50, 56.8,	68.2
Medical Coll. of Virginia	(1905)	33.6

Idaho April Report.

Dr. W. F. Howard, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Cœur d'Alene, April 7-8, 1908. The number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 27, of whom 21 passed and 6 failed. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Denver and Gross College of Medicine	(1907)	78.9
Denver College of Medicine	(1888)	88
College of P. & S., Chicago	(1903) 79.8; (1906) 75.9 (1907)	79.5
Rush Medical College	(1893) 82.6; (1897) 75.8; (1902)	89.3
National Medical University	(1905)	82.4
Kansas Medical College	(1895)	81.4
Kentucky School of Medicine	(1901) 83.7; (1905)	80.4
Harvard Medical School	(1899)	83.7
University of Michigan	(1886)	92
Missouri Medical College	(1895)	75
Creighton Med. Coll.	(1905) 79.6, 84.8; (1907) 78.5,	86.7
Woman's Med. Coll. of Pennsylvania	(1895)	83.1
University of Virginia	(1904)	75

FAILED.		
Bennett Coll. of Ecl. Med. and Surg.	(1894)	53.1
Detroit College of Medicine	(1906)	69.4
College of P. and S., St. Louis	(1903)	68.1
Missouri Medical College	(1894)	69.2
Barnes Medical College	(1898)	2.3
Vanderbilt University	(1900)	62.7

Massachusetts May Report.

Dr. E. B. Harvey, secretary of the Massachusetts Board of Registration in Medicine, reports the written examination held at the State House, Boston, May 12-14, 1908. The number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 50, of whom 24 passed, including one non-graduate, and 22 failed, including 5 non-graduates. The following colleges were represented:

PASSED. College.	Year Grad.	Per Cent.
Maryland Med. Coll.	(1905)	79.4
University of Maryland	(1889)	75.2
Boston University	(1907)	75
Harvard Medical School	(1908)	77.7
Tufts College Medical School	(1900)	78.9
Dartmouth Medical College, (1894) 79; (1907) 75; (1908) 75, 78.2, 78.5, 80.8.		
Albany Medical College	(1907)	75
New York Homeopathic Med. Coll.	(1902)	79.9
Bellevue Hosp. Med. Coll.	(1888)	82.7
Jefferson Med. Coll. (1897) 76.5;	(1907)	77.7
Woman's Med. Coll. of Pennsylvania	(1907)	81
University of Vermont	(1898)	79.5
Queen's University, Kingston, Ont.	(1902)	81
Laval University, Quebec	(1902)	75.
McGill University, Montreal	(1907)	75, 77
Dalhousie University, Halifax, Nova Scotia	(1903)	80.6
Nongraduate		79.4

FAILED.		
Georgetown University	(1906)	72.5
Howard University, Washington	(1907)	71.5
American Med. Miss. Coll.	(1906)	71.5
Chicago Homeo. Med. Coll.	(1890)	62
Baltimore Med. Coll. (1895) 43.3; (1902) 59.5;	(1907)	69, 72.5
Baltimore University (1904) 62.9, 68.2;	(1907)	71.9
Tufts College Medical School	(1907)	60.6
College of P. and S., Boston. (1905) 67; (1906) 61;	(1907)	67.7
Laval University, Quebec	(1906)	67.4
Imperial Alexanders University, Finland, Russia	(1902)	69.7
Nongraduates 53.3, 64.6, 65.2, 68.6,		73.5

Illinois Medical Colleges in Good Standing.

The Illinois State Board of Health announces for the information of medical colleges, medical students and those who may be about to take up the study of medicine, that the following medical colleges in the state of Illinois are in "good standing" with the State Board of Health:

Bennett College of Eclectic Medicine and Surgery, Chicago.
Chicago College of Medicine and Surgery (formerly the American College of Medicine and Surgery), Chicago.
College of Physicians and Surgeons, Chicago.
Hahnemann Medical College, Chicago.
Hering Medical College, Chicago.
Illinois Medical College, Chicago.
Northwestern University Medical School, Chicago.
Rush Medical College, Chicago.

At the meeting held June 23, the Illinois State Board of Health declined to reinstate the National Medical University in "good standing" and by unanimous vote reaffirmed the action of the board taken March 15, 1907, when the National Medical University was declared not in "good standing."

Marriages

VIRGIL ABEL, M.D., to Miss Mabel Boas, both of Vallonia, Ind., June 12.

FONROSE LAWSON, M.D., Sullivan, Ill., to Miss Helen Greer of Gays, Ill., June 10.

C. C. DOUGHERTY, M.D., to Miss Florence Merklee, both of Philadelphia, June 17.

J. F. CUTLER, M.D., to Miss Imogene Brigham, both of Philadelphia, June 19.

W. H. LIPHERT, M.D., to Miss Ida R. Lippincott, both of Philadelphia, June 17.

H. A. ROSS COPPAGE, M.D., to Miss Mabel E. Fowler, both of Baltimore, June 18.

BERT F. GLEASON, M.D., to Miss Adeline S. Miller, both of Arthur, Iowa, June 20.

CHARLES E. STAUTER, M.D., to Miss Sadie Wolfe, both of Baltimore, Md., June 6.

S. A. SHADRACH, M.D., Baltimore, to Miss Sallie R. Brown, at Danville, Va., June 9.

GEORGE G. TAYLOR, M.D., Chicago, to Miss Ethel G. Hickok of Allegan, Mich., June 10.

HARLAN SHOEMAKER, M.D., Philadelphia, to Miss Grace Clyde Gilman of New York City, June 4.

WILLIAM RUDOLPH BOOSE, M.D., to Miss Mabel Wilson, both of Falls City, Neb., June 24.

DAVID A. BAKER, M.D., Bowman, N. D., to Miss Ollie Clark of Denver, Ill., recently.

JOHN C. JACOBS, M.D., Spicer, Minn., to Miss Mattie Lien of Willmar, Minn., recently.

HENRY MCGUIGAN, M.D., Mazeppa, Minn., to Miss Catherine Zender of Austin, Minn., June 16.

FRANK BARROWS, M.D., Boise, Idaho, to DESSIE B. ROBERTSON, M.D., of Boulder, Colo., June 17.

JOHN A. FREEMAN, M.D., to Miss Edna Marks, both of Beard, Ky., at O'Bannon, Ky., June 17.

WILLIAM PRESTON HOY, M.D., to Miss Eleanor Beverley Constable, both of Petersburg, Va., June 16.

WILLIAM FLETCHER HALL, M.D., Crisfield, Md., to Mrs. Clara J. Benson of Wilmington, Del., June 17.

WILEY LEON WHITEHEAD, M.D., Lake City, S. C., to Miss Bessie Branch Keels of Lynchburg, S. C., recently.

JOSEPH HASKELL CHILES, M.D., Oviedo, Fla., to Miss Ida Miller Howard of Pulaski, Va., in Jacksonville, Fla., June 17.

Deaths

Furman J. Shadd, M.D. Howard University Medical Department, Washington, D. C., 1881; a member of the Medico-Chirurgical Society of Washington, D. C.; for thirteen years assistant surgeon at the Freedman's Hospital, Washington; professor of materia medica and therapeutics, and secretary and treasurer of the Medical Department of Howard University; one of the most prominent colored practitioners of Washington; died at his home, June 24, as the result of a general nervous breakdown, after an illness of several months, aged 54.

Peter V. Burnett, M.D. New York University Medical College, 1876; of Brooklyn, N. Y.; a member of the Medical Society of the State of New York; physician to the Eastern Dispensary and Nose, Throat and Ear Hospital; who was under treatment in Mount Sinai Hospital, New York City, on account of overwork; leaped from the roof garden of the hospital, June 29, and was instantly killed.

John Gilman McAllister, M.D. College of Physicians and Surgeons in the City of New York, 1866; a member of the Massachusetts Medical Society; president of the Lawrence (Mass.) board of U. S. pension examiners; a veteran of the Civil War and a member of the consulting staff of the Lawrence General Hospital; died from heart disease, June 20, after an illness of six months.

James Park West, M.D. Medical College of Ohio, Medical Department of University of Cincinnati, 1882; a member of the American Medical Association and American Pediatric Society; United States pension examining surgeon at Bellaire, Ohio; a well-known specialist in diseases of children; died at his home in Bellaire, June 25, from facial erysipelas, after a short illness, aged 49.

George M. Walker, M.D. University of Tennessee, Medical Department, Nashville, 1888; a member of the American Medical Association; one of the oldest practitioners of Hamilton County, Tennessee, and for several years physician to the New Soddy Coal Company; died at his home in Soddy, Tenn., June 21, after an illness of two weeks, aged about 60.

John G. VanDeveer, M.D. Kentucky School of Medicine, Louisville, 1903; a member of the American Medical Association; formerly a practitioner of Fairland, Okla., and an interne in the City Hospital, Louisville; died in his room in Louisville, June 27, from multiple neuritis and heart disease, after an illness of five weeks, aged 32.

William M. Michel, M.D. Georgetown University School of Medicine, Washington, D. C., 1870; for several years a physi-

cian at the Round Valley and Hoopa reservations; who was injured May 1 by a fall which caused paralysis; died at his home in Ferndale, Cal., as a result of his injuries, June 15, aged 68.

Daniel W. Lynch, M.D. Northwestern University Medical School, Chicago, 1875; a member of the American Medical Association; local surgeon at West Bend, Wis., for the Chicago & Northwestern Railway; died at his home in that city, June 25, after an illness of six weeks, aged 60.

Samuel B. Lightner, M.D. Jefferson Medical College, Philadelphia, 1863; a member of the American Medical Association; a member of the U. S. pension board of Clinton County, Ohio; and local surgeon of the Baltimore & Ohio Railroad at Sabina; died at his home, June 24, aged 68.

George W. Jones, M.D. Louisville (Ky.) Medical College, 1886; of Denham Springs, La.; a member of the Louisiana House of Representatives; was killed in the wrecking of a train at the crossing of the Baton Rouge and Hammond and Red River Valley Railroads, June 23.

Pelatiah Fitch, M.D. Jefferson Medical College, Philadelphia, 1862; assistant surgeon of the Eighth New Jersey Volunteer Infantry and surgeon of the Tenth New Jersey Volunteer Infantry during the Civil War; died at his home in Philadelphia, June 25, aged 66.

John S. Sullivan, M.D. Atlanta (Ga.) Medical College, 1891; a member of the American Medical Association, and one of the best known practitioners of Macon, Ga.; died at his home in that city, June 22, after an illness of several months, aged 58.

Henry Morris Raker, M.D. Jefferson Medical College, Philadelphia, 1862; of Augustaville, Pa.; died in the Mary H. Packer Hospital, Milton, Pa., June 19, from cerebral hemorrhage, after an illness of sevral days, aged 67.

James S. McNeel, M.D. Rush Medical College, Chicago, 1889; a member of the State Medical Society of Wisconsin; died at his home in Waterloo, June 20, from cerebral hemorrhage, after an illness of several days, aged 67.

James A. Lydston, M.D. Rush Medical College, Chicago, 1885; formerly professor of chemistry in the College of Physicians and Surgeons; died suddenly at his home in Chicago, July 6, from the effects of the heat, aged 47.

William Glasgow Condit, M.D. Chicago Homeopathic Medical College, 1900; Jefferson Medical College, Philadelphia, Pa., 1904; a member of the Iowa State Medical Society; died at his home in Allerton, June 20, aged 32.

John F. Daniel, M.D. Medical College of the State of South Carolina, Charleston, 1858; died, June 23, at his home in Daniel, Saluda County, S. C., from paralysis, after an illness of three weeks, aged about 75.

Wiliam A. Egbert, M.D. Cleveland University of Medicine and Surgery, 1875; of Spokane, Wash.; died at the Deaconess' Home Hospital in that city, June 23, from heart disease, after a short illness, aged about 65.

Henry Ganter, M.D. University of Würzburg, Germany, 1875; died at his home in Floraville, Ill., from cerebral hemorrhage, June 24, after an illness of three days, aged 59.

Louis H. Reid, M.D. Georgetown University School of Medicine, Washington, D. C., 1876; a Confederate veteran; died at his home in Atlanta, Ga., June 25, aged 68.

Thomas McCausland, M.D. College of Physicians and Surgeons, Ontario, Toronto, 1868; died at his home in Toronto, June 21, after a prolonged illness, aged 72.

George K. Tillotson, M.D. Rush Medical College, Chicago, 1876; of Chicago; died in Lakeside Hospital, July 2, from septicemia, after an illness of two weeks, aged 58.

George F. Webber, M.D. Medical School of Maine, Medical Department of Bowdoin College, Brunswick, 1879; died at his home in Fairfield, Maine, May 11, aged 55.

Oscar T. Lewis, M.D. Medical Department of the University of Tennessee, Nashville, 1891; died at his home in Roans Prairie, Texas, June 23.

Locke S. Pennington, M.D. Memphis (Tenn.) Medical College, 1906; died recently at his home in Steens, Miss., aged 26.

Deaths Abroad.

M. Bial, M.D., of Kissingen, whose name is connected with researches on the pathology of the metabolism, died at Munich, May 26, aged 38.

A. Reverdin, M.D., the well-known professor of surgery at Geneva, Switzerland, died at that place June 16.

Society Proceedings

COMING MEETINGS.

American Ophthalmological Society, New London, Conn., July 15-16
American Public Health Association, Winnipeg, Can., Aug. 25-28.
American Acad. of Ophthal. and Oto-Laryng., Cleveland, Aug. 27-29.
Wyoming State Medical Society, Sheridan, Aug. 28.

AMERICAN PEDIATRIC SOCIETY.

Annual Meeting, held at Delaware Water Gap, Pa., May 25-26, 1908.

(*Continued from page 66.*)

Congenital Obliteration of Esophagus with Report of a Case.

DR. J. P. CROZER GRIFFITH, and DR. R. L. LAVENSON, Philadelphia, said that they had endeavored to make the report one for reference, and necessarily, they had referred largely to the writings of others, adding such cases as they had collected. The case reported was one of obstruction with fistula into the trachea; a child aged 9 days, admitted to the Hospital of the University of Pennsylvania, had been unable to swallow since birth and every attempt to give anything produced strangulation with cyanosis and regurgitation through the mouth. The child had been greatly emaciated and had died a few hours after admission. A drawing of the condition was shown. Upper part of esophagus ended blindly; lower part opened into trachea. Symptoms were characteristic. There was constant choking over mucus that could not be swallowed. Death invariably occurred in such cases, due partially to drying up of the tissues from lack of water. The only possible thing to do was a gastrostomy, which had been tried in several cases.

Spasmodic Stricture of the Esophagus in an Infant Aged Four Months.

DR. SAMUEL S. ADAMS, Washington, presented the history of infant who came under observation at the age of four months, a year last February. He was called in to see a well nourished baby with a history of having some difficulty in swallowing. The mother had nursed it, he said, up to the third month, when modified milk had to be substituted. The child could swallow at times and then something would take place that prevented swallowing and it would go some days without food. On giving a few spoonfuls of water, which were taken ravenously, distress was shown, with attempts at vomiting. Fluid would come up into the mouth and be swallowed again. After eight or ten attempts it was rejected, together with mucus. Obstruction of esophagus of a spasmodic nature was diagnosed. Attempts to pass a bougie had failed, but a small sound had been passed and followed up with a small feeding tube. Skiagraph showed nothing. The parents had removed the child from hospital and for the next fourteen months it had not been seen, but the condition was said to have persisted. Later the child had died of pneumonia, autopsy showing a pneumonia of posterior left side and rupture of a diverticulum. There was an obstruction of the esophagus due to breaking down of an enlarged tuberculous gland, which pressed upon the esophagus. Below the obstruction there were two diverticuli; and a third above it.

DISCUSSION.

DR. AUGUSTUS CAILLE, New York, reported a somewhat similar case in a lad of ten, who had had a spasmodic stricture for five years. It came on gradually and the boy was moribund from starvation. Once or twice a week the tube had to be used to feed him. He had had hydrocephalus in infancy and the speaker thought that the irritation was probably of central origin. Dr. Caillé gave a warning regarding the examination of the esophagus by the sound or esophagoscope, having recently seen a girl of 16, with difficulty in swallowing, examined with the esophagoscope by expert, who had run the instrument into the pleural cavity, which was followed by pneumothorax and death.

DR. C. B. PUTNAM, Boston, mentioned a case like Dr. Griffith's, that had occurred in a child 3 years of age. The esophagus had had a blind ending and the lower portion had opened into the trachea.

DR. THOMAS MORGAN ROTCH, Boston, said that some of these cases of constriction of the esophagus simulated very closely pyloric stenosis and were almost identical as to rational signs. There was danger in passing a sound because there seemed to be a thinning of the wall at the lower part of the esophagus in these cases. They also simulated closely cases of chronic gastric indigestion.

DR. A. JACOBI, New York, said that carcinoma of the esophagus was apt to be found in the same position. He thought that the cause must be looked for in embryonal conditions. Defects of the muscular layers were quite common.

DR. SAMUEL S. ADAMS, Washington, said that there had been no fluid found outside the esophagus in the surrounding tissue, nor had there been anything in the bronchial tubes, but he believed the pneumonia to have been probably the result of inspiration of some food the child had been trying to take.

A Simple Method of Circumcision in the Newborn.

DR. W. REYNOLDS WILSON, Philadelphia, said that the disadvantages of the usual method were, first, in the incompleteness of removal of the foreskin in instances where it was adherent to the glans; second, in the application of the sutures; it might require a number of sutures to control the bleeding points and the sutures thus placed irregularly might have to be tightened to the point of unduly constricting the tissues, as a result of which edema might occur; should sutures become infected, a slough would form and resulting granulations would be difficult to deal with. He splits the prepuce longitudinally on the dorsal aspect with a pair of sharp scissors. The skin was first divided, division of the mucous membrane to a point corresponding to the limit of division of the skin following. The mucous membrane was rolled back to the corona and rendered perfectly free. The scissors were used to trim off the redundant fold of skin and mucous membrane on either side of the incision, and the redundant fold of skin to the distal side of the frenum was likewise removed. The skin was then drawn back and carefully inspected, in order to deal with any irregularity in the cut edge. A tape of gauze, half an inch in width, and so cut that the edges were frayed was applied, securing the roll of mucous membrane in position behind the corona and compressing the bleeding vessels. The end of the glans was left uncovered so that there might be no obstruction to the meatus. Over the gauze tape a dry gauze pad was placed and the napkin applied.

Acute Epidemic Anterior Poliomyelitis.

DR. HENRY KOPLIK, New York, said the epidemic which had visited New York last summer had been the most extensive known in New York and possibly in the United States, numbering something over 1,200 cases; and his impression was that a great many were not reported to the Board of Health. The disease had been quite widely distributed; it had occurred, not only in the crowded or filthy districts, but in the best localities. Conditions of the streets had not been unusual; there had been nothing in the water supply to attract attention, and the milk supply had been as good as in previous summers. The general characteristics of the disease had not resembled that which was known as poliomyelitis anterior, but something new. There had been cerebral cases, in which the child apparently healthy would go into a sudden condition of unconsciousness, or develop paralysis of the extremities, with difficulty in respiration and swallowing In other cases the cerebral condition would abate but there would be complete paralysis. The child might go to bed apparently well and wake with acute pain in the extremities and joints. These cases were often mistaken for rheumatism. Patients would go to bed well and awake with paralysis of the extremities. The term poliomyelitis must be accepted temporarily. In the majority of the neurotic cases the reflexes had been increased. The rapid atrophy of the muscles in the cases where paralysis was to remain permanent had been striking. As to mode of infection; in most there had been some history of intestinal disturbance; in others a distinct tonsillar inflammation just before the onset of the disease. There was a new infectious agent capable of causing paralysis and even death by its effect on the gray matter. It was sad to see how many children had been incapacitated by this disease. The treatment which had seemed to give the best result was that pursued in other forms of neuritis—hot baths, massage, electricity, etc. Dr. Koplik advised keeping up the tone of the muscle while the paralysis lasted.

Early Symptoms of the Recent Epidemic of Poliomyelitis.

DR. L. E. LAFETRA, New York, said that the epidemic in New York did not agree with the ordinary symptoms of poliomyelitis, which begun with vomiting and fever, followed later by paralysis. He had made a study of the early symptoms in 63 cases. The condition preceding the onset of the disease had not been sufficiently uniform to justify any conclusion. Vomiting had occurred in 25 cases; constipation in 14; diarrhea in 17. Fever had been noted as present in 52, but probably had been present in all. Restlessness and irritability had been very common. In three cases there had been marked general hyperesthesia; convulsions in 4, but severe in only 1; rigidity of the neck in 11, persisting over a week in one. Study of the reflexes was not satisfactory; of 20 cases reflexes had been absent in 16. In 2 patellar reflex had been absent on both sides while paralysis had involved only one extremity. In no case had the tendon reflex been exaggerated. Babinski sign present in 3. Apathy present in 10 cases, stupor in 4 cases, headache noted as present in 10 cases; photophobia present in 3. Pain and tenderness in the limbs in 3. Character of the paralysis: in 58 cases flaccid, in 5 rigidity. Opisthotonos had existed five days in one case. Lumbar puncture had been done in 14 cases; fluid clear in every instance and negative as to bacteria. Confusion with meningitis or neurosis very easy in the early stage.

DISCUSSION.

DR. L. EMMETT HOLT, New York, said the epidemic was now being studied by a committee appointed by several of the societies, and according to the best information obtained the number of cases in New York was not far from 3,000, so that it was probably the largest epidemic in the world. He had been struck by the number of groups of cases occurring together.

Another striking thing was the number of cases that recovered, and completely. The disease had stopped with the advent of October and that had been the history of these epidemics everywhere—that they ceased with the beginning of cold weather. Examinations suggested that it was perhaps an acute inflammation of the central nervous system, which generally localized its effects on the anterior horns, but might affect the cerebrum without affecting the cord at all.

DR. A. JACOBI, New York, did not agree with the view that it was an entirely new disease. He thought that it was not perhaps a disease of the cord itself, but of the whole nervous system. Similar cases had been observed in the extensive reports of Heine, in 1840 and 1860. Cases of polioencephalitis had a greater tendency to get well than cases of poliomyelitis.

DR. JOHN LOVETT MORSE, Boston, agreed that the symptomatology in this epidemic was not new.

DR. C. G. KERLEY, New York, had seen in this epidemic 43 cases, 13 in the Babies' Hospital, 9 in other institutions, 3 in his own practice and 18 in consultation. He agreed with Dr. Koplik and Dr. LaFetra as to the symptomatology.

DR. HENRY KOPLIK, New York, said that the findings postmortem in two fatal cases at the Mount Sinai Hospital showed areas of softening throughout the cortex; areas of hemorrhage throughout the cord, and areas of softening in the cord. The disease did not affect any other nervous disease that might be in progress at the same time.

An Unusual Type of Acute Nephritis in Children.

DR. JOHN LOVETT MORSE, Boston, said that he had recently seen a number of cases of acute nephritis in children in which the characteristics of the urine had been materially different from those of the ordinary form, the chief difference being the complete or almost complete absence of blood and blood elements and the presence of a large number of small, round, mononuclear leucocytes. There could be no doubt that the cases were acute and not chronic. The course was essentially

the same as in other forms of acute nephritis with the exception that the duration was usually shorter and the prognosis somewhat better. The histories were given in detail and illustrated the types very well. In some instances not only was blood absent but very few other renal elements were found, even when the symptoms were marked and there was a large amount of albumin. The only description which seemed to fit this type was one by Huenner. He thought the condition one of pyelonephritis rather than the ordinary acute glomerular or interstitial nephritis.

DISCUSSION.

DR. HENRY KOPLIK, New York, called attention to the description in Osler's collection of cases of typhoid with the occurrence of such kidney trouble in which there were leucocytes and casts in the urine. He had a case then under observation in which the existing nephritis probably resulted from gastroenteritis.

DR. J. H. MASON KNOX, Baltimore, described similar cases running a chronic course in which sections showed convoluted tubules undergoing hyaline degeneration, the nuclei not staining at all.

DR. L. E. LAFETRA, New York, had had one case that corresponded quite closely with those of Dr. Morse, and in that case the leucocytes had persisted for a long time after disappearance of the casts. The child had been otherwise in good health and the only thing that had called attention to the condition had been some puffiness of the eyelids.

President's Address—Public School Education.

DR. CHARLES GILMORE KERLEY, New York, said that the education of a child, taken in a broad sense, comprehended all that disciplined and enlightened the understanding, cultivated the taste and formed manners and habits. It meant all preparation, all means to the end of fitting the child for a field of activity whereby his own life might be made more satisfactory to himself and more useful to the state. The child should be taught how to live.

Dr. Kerley considered the subject from the two standpoints: That which related to the child's physical, and that which related to its mental development. The speaker said that in the United States to-day there were 18,000,000 children in attendance at the public schools. The school year had been increased from three months to ten months. The chief control of the child had been transferred from the home to the school, which meant that the duties and responsibilities of the public school had increased tremendously. He quoted from the report of Dr. Maxwell, Superintendent of Schools in New York, who said "sitting several hours a day at a desk which may not be hygienically constructed, increases such diseases as curvature of the spine and often produces faults of posture, and defects in eyesight." Dr. Kerley advocated some changes in the curriculum. He would have the pupils taught reading, penmanship, geography, history and arithmetic, and leave out the non-essentials. Among the essentials he included religion, as it was the corner stone of character; it should comprise allegiance to a Supreme Being and obligation to one's self and his neighbor. Social prophylaxis should be taught and what constitutes morality. The pupil should be taught the deleterious effects of alcohol and narcotics. Dr. Kerley deprecated the system of prizes and rewards for the best recitations and sets of answers as a bad one, as it overtaxed the pupil. He would impress on teachers and the Boards of Education the thought that "labor is the inevitable lot of the majority and the best education is that which makes labor the most productive."

Recent Diagnostic Methods in Tuberculosis of Children.

DR. L. EMMETT HOLT, New York, presented this paper, which consisted principally in the exhibition of a series of charts illustrating the employment of the fever reactions to tuberculin, the tuberculin eye test (Calmette) and the tuberculin skin test (v. Pirquet). Of the fever reactions to tuberculin, he said, of the positively tuberculous, 22 were positive, 1 doubtful and 1 negative; of cases probably tuberculous there were 17 positive reactions, no doubtful or negative; of cases probably not tuberculous, 2 positive reactions; of the positively not tuberculous, 1 positive, 60 negative reactions. There had been no unfortunate results in any of the cases; 568 tests had been made. The second chart was based on experiments with the Calmette test; of the positively tuberculous, there had been a positive reaction in 24, doubtful 3, negative 8; probably tuberculous, 15 positive, 1 doubtful; probably not tuberculous, positive 2, doubtful 6, negative 508. Tuberculin skin test; of the positively tuberculous, positive 7, negative 1; probably tuberculous, positive 9, negative 1; probably not tuberculous, negative 41; positively not tuberculous, negative 3. In the skin test there had been no doubtful reactions recorded, a point in favor of that test. He had not employed the Moro test, with inunction. As regarded reliability, the fever test was not so scientific. The skin test was made with three scratches and 25 per cent. tuberculin rubbed into two of them. The character of the reaction was definite. The skin and temperature tests were the most reliable, and absolutely free from risk. Experience of others had shown that eyetest was not altogether free from risk. He thought the fever reaction would disappear from clinical use to be replaced by the other two tests. In regard to ease of application the skin and Moro tests were to be preferred. The eye test also was satisfactory in this respect. He considered the tests of great assistance in the diagnosis of tuberculosis.

DISCUSSION.

DR. WILLIAM P. NORTHRUP, New York, agreed with the essayist. He did not take a cheerful view of the injection test. He thought there was considerable risk in the eye test.

DR. THOMAS MORGAN ROTCH, Boston, agreed that the fever test would not be so popular in the future as the eye and skin tests, but they had never met with any serious results, except where there had been a fault in the technic. In 100 consecutive cases the eye test had given no bad results. He preferred the skin test.

DR. AUGUSTUS CAILLE, New York, opposed the eye test, as he did not think the eye a proper organ for experimentation. He thought it fairly unreliable.

DR. HENRY KOPLIK, New York, had found the v. Pirquet test useful in those cases where fever existed and the tuberculin fever test was ruled out. The eye test he had not allowed to be used in his service as he was afraid of it.

DR. S. M. HAMILL, Philadelphia, had ruled out the eye test because it produced a lesion which was painful and disturbing, and he considered that it was attended with some risk.

DR. A. H. WENTWORTH, Boston, called attention to the positive reactions in healthy persons and said that there were a good many tables published in German literature of apparently healthy persons giving positive reactions. In one series one-sixth gave a positive reaction for the eye test and almost one-half for the cutaneous.

DR. L. EMMETT HOLT, New York, said that positive reactions in healthy persons might be due to latent tuberculosis.

Fresh Air in the Treatment of Disease.

DR. WILLIAM P. NORTHRUP, New York, presented two points; one as to the practical application of open air treatment; the other as to the cases to which it is adapted. One of the first questions, he said, was, Is cold essential? He was convinced that it was. The experience of the Health Department of New York in the treatment of tuberculosis was interesting; patients put out in the open shack slept well without "dope." He considered this one of the most important points—that the patients became quiet and slept. One of the first rules should be that the patient and attendant should be made comfortable, and this could be done in very cold weather if gone about in the proper manner. As to the preparation of the bed there should be first laid upon a spring mattress a sufficiently large blanket that when folded over should represent an envelope; it should be brought over and pinned around the entire patient; inside this there should be a paper or rubber layer to keep the cold from coming up from below. The patient should be clothed in a union suit. With adults it might be necessary to wheel them inside once in a while to allow them to stretch. As to the type of disease adapted for the open air treatment he suggested pneumonia, scarlet fever, measles, bronchitis, acute febrile disease of any kind. As to the results, it killed nobody; it hurt nobody, and, he was equally sure

that it helped all. In doubtful, desperate cases it had often determined the balance in favor of cure.

DR. E. E. GRAHAM, Philadelphia, said that the fresh air treatment had been of prime importance in reducing the infant mortality in his institutional practice. He had lost his dread of pneumonia as a hospital disease since the beginning of this manner of treatment in the wards. Typhoid patients did so much better in the fresh air that nothing could induce him to return to the old treatment.

(To be continued.)

AMERICAN ASSOCIATION FOR CANCER RESEARCH.

Meeting held in Buffalo, April 15, 1908, at the New York State Cancer Laboratory.

The President, DR. JAMES EWING, New York, in the Chair.

Hemolytic Tests for Malignancy in Human Beings.

DR. GEORGE W. CRILE reported the results of the test as follows:

I. Normals, 107 tests. No hemolysis.

Tests of miscellaneous diseases, 50. Hemolyzed, 4. These 4 included 1 hemoglobinuria, 1 eclampsia, 1 gastric case diagnosis not made, and 1 hematuria. Carcinoma, 50. Hemolyzed, 39. Sarcoma, 16. Hemolyzed, 13. Making a total of 66 cases of malignancy in which 53 hemolyzed.

Carcinoma recurrence, or cured, to prove if cured. Ten tests made, 9 no hemolysis, 1 questionable. Papilloma, 2 tests. Hemolysis, 1; no hemolysis, 1. Tuberculosis (surgical), 11 tests; hemolyzed, 9. Chronic suppuration, 10 cases. No hemolysis.

II. Of the 13 cases not giving hemolytic reaction: One gastric case; diagnosis not proved. One sarcoma spine; advanced case. One suspected sarcoma; advanced case. One carcinoma recurrence; advanced case. One cystic ovary. Five carcinomata breast; advanced cases. Two epitheliomata (neck); advanced cases. One lymphosarcoma; advanced case.

Suspected malignant cases not showing hemolysis, and positive diagnosis proving no malignancy: Two gastric cases. Four gall-bladder cases. Two tumor of the thigh. Two cirrhosis of liver. One tumor of chin. One tumor of clavicle. One cystic ovary. One breast case (cyst).

Case on the medical service March 18, 1908, showed hemolysis and reverse hemolysis, and a tentative diagnosis of carcinoma of the stomach was made. Medical service diagnosed the case anemia. April 25 medical service palpated tumor and diagnosis of carcinoma of stomach was made from specimen of tissue from stomach contents.

DISCUSSION.

DR. R. WEIL, in discussing Dr. Crile's paper, staid that during the past few years a number of observers had studied the hemolytic effects of human serum in certain diseases. The majority had used the corpuscles of alien species, but some, notably, Ascoli, had used human corpuscles. Ascoli had, by this method, reported three cases of hemolysis by cancer sera, but had also found hemolysis in other diseases. Dr. Weil had some time ago reported the results of a systematic study of the effects of a series of sera derived from dogs suffering with tumors, on the corpuscles of other dogs suffering with the same disease. He had found these sera hemolytic in almost every case, but he had also found normal sera frequently hemolytic for dog corpuscles. He had, however, been able to demonstrate a specific resistance on the part of the corpuscles of tumor dogs to the serum from such animals, which normal corpuscles do not show. He was glad that Dr. Crile had been able to confirm these reactions in human beings. His own experience in a smaller number of human cases had failed to reveal any such specific corpuscular resistance in cancer cases. He believed that the serum in human cancer is sometimes hemolytic, often not so, and that other diseases, such as tuberculosis, often show the same conditions. He did not believe that the reaction in human beings is of any value at present. The specific resistance of red cells to the hemolytic sera of the individuals from which they were derived is a phemonenon which needs much further study. It has been demonstrated as the result of the injection of eel serum in rabbits and has been accepted by Ehrlich. It seems to be a necessary corollary of the existence of isolysins, as demonstrated by Theobald Smith in horses, and by the speaker in dogs, but was far from being generally accepted or understood.

The Lymphosarcoma of Dogs.

DR. LEO LOEB reported on investigations carried out with Drs. John Hunter and G. M. Laws into the character of the lymphosarcoma of dogs. About eight years ago the author showed that after a successful inoculation of the sarcoma of the thyroid of white rats the peripheral parts of the transplanted cells remain alive and multiply rapidly by mitotic division. The new sarcomata arise through a proliferation of the transplanted tissue and through cell multiplication in the host. Afterwards Jensen showed the same process to take place after transplantation of adeno-carcinomata of the mouse. In regard to the tumors found in dogs in the genital region, opinions differ very much. Sticker maintained that the inoculated tumors originate through a multiplication of the transplanted cells. Bashford disputed this view and stated that the formation of the new growths results from an infection of the host by unknown organisms. Beebe and Ewing showed that after transplantation the peripheral tumor cells remain alive and give origin to the tumors, a view which has not yet found general recognition. The author's investigations show without any doubt that the interpretation of Sticker and Beebe and Ewing is correct. The examination of tumor pieces at different periods after transplantation proves that peripheral tumor cells remain alive and propagate very soon after inoculation. That at any stages the connective tissue cells of the host can be proved to participate in the proliferation, as has been recently maintained by Wade, is very unlikely, but further researches into this question will be made.

The Transplantation of Skin of the Guinea-Pig into Different Species.

DR. LEO LOEB and DR. W. H. F. ADDISON said that a very large number of comparative transplantations of guinea-pig skin into the guinea-pig, rabbit, dog, pigeon and frog showed that (1) after transplantation into the rabbit and dog, infection of the transplanted skin is much more frequent than after transplantation into the guinea-pig and pigeon. (2) The number of pieces which grow is very much smaller after transplantation into foreign species. (3) Pieces of guinea-pig skin can proliferate by mitotic division in the rabbit and dog up to 8 days; but such a proliferation is only exceptional in the dog; in the pigeon such a proliferation may take place up to the sixth day and is much more frequent. No mitosis can be seen in the frog at any period after transplantation; the skin dies very rapidly in the frog; if such skin is retransplanted into the guinea-pig about six hours after transplantation into the frog, no growth takes place in the guinea-pig. Living epithelium is seen in the rabbit even ten days after transplantation. (4) Pieces of guinea-pig skin which remain alive in the rabbit are destroyed through the proliferation of the surrounding connective tissue of the host, in a similar way as guinea-pig skin transplanted into the guinea-pig is gradually destroyed through the surrounding connective tissue, in cases in which the epithelium of the guinea-pig skin has not been able to form a cyst. The formation of such a cyst has never been observed in the author's experiments, after transplantation of skin into other species, because the energy of cell-growth is less under these conditions. (5) They find typical differences in the curve of growth after transplantation of skin into different species. In the frog no growth takes place. In the pigeon the cell proliferation in the first five days is very good, but then follows a sudden decline. In the rabbit the growth of the non-infected pieces is in the first five days not better than in the pigeon, but, after this period the rabbit forms a soil much superior to the pigeon. In the dog the growth is usually very slight. On the whole, therefore, there is a distinct connection between the condition of growth of the transplanted skin and the relationship between

the guinea-pig and the animal into which the skin has been transplanted. (6) The facts established can not be very well explained on the basis of Ehrlich's hypothesis of athreptic immunity, but suggest the presence of toxic substances in the organisms of a different species.

Dr. Leo Loeb demonstrated microscopic specimens of different varieties of malignant stuma, sent by Professor Langhans from the Pathological Institute in Berne.

Autoinoculation or Local Infectivity of Cancer.

DR. WILLIAM B. COLEY, of New York, read this paper and gave a report of cases. Regarding the question of autoinoculation of lip carcinoma, Dr. Coley referred to an important discussion on this subject in Glasgow, 20 years ago, in which Sir Hector Cameron expressed his opinion against autoinoculation. In this discussion Cameron stated that "the upper lip in every case of epithelioma of the lower lip, is in close contact with the disease, night and day. But, has any one ever seen the upper lip become infected by direct contamination under such circumstances?"

Dr. Coley then cited Butlin, who stated that, since this discussion took place, there have been three cases of infection of the upper lip by the lower, but in only one—that of v. Bergmann, had a microscopical examination been made of both tumors. Through the kindness of Dr. George C. Johnston, of Pittsburg, Pa., Dr. Coley was enabled to report another case of apparent autoinoculation of the upper lip from an epithelioma of the lower lip. The patient, male, age 47 years, consulted Dr. Johnston in the fall of 1904, with a typical carcinoma of the lower lip involving the submaxillary glands. Refusing operation, the patient was treated with the *x*-ray, with the result that the tumors disappeared. Three years later, there developed a similar, typical, epitheliomatous tumor on the upper lip, precisely over the site occupied by the tumor of the lower lip three years before. Dr. Coley presented photographs of the case taken at different periods during the three years. He believed that from this observation it would be difficult to escape the conclusion that the tumor of the upper lip was the result of direct contact infection from the tumor of the lower lip, and, furthermore, that there was an incubation period of three years, which makes the case unique.

Dr. Coley reported in brief another case which had been under his personal observation about eight years ago, in which a primary carcinoma of the cecum had caused a similar tumor to develop in a loop of small intestine by direct contact infection. He had performed resection of both the large and the small intestine, and microscopical examination showed the growths to be of similar type in both cases. He stated that he had also observed a number of the more common varieties of so-called autoinoculation, e. g., rapidly developing carcinoma of the muscle and skin wound of the abdomen, following operation for abdominal carcinoma, especially in cases in which free fluid was present at the time of operation.

He referred to a recent paper by Charles Ryall (*Lancet*, Nov. 9, 1907) on Cancer Infection, describing 25 personal cases illustrating the various types of autoinoculation.

Dr. Coley stated that he believed the local infectivity of cancer to be an indisputable fact which no one, who has had a large operative and clinical experience with the disease, can doubt. He believed that if this fact were more generally appreciated, it would lead to much greater care in cutting wide of infected areas at primary operations, and would greatly lessen the number of so-called palliative operations for cancer, in which the disease is but partially removed, and in which highly infective cancer cells are widely disseminated over new areas.

DISCUSSION.

DR. LEO LOEB, in connection with Dr. Coley's interesting observations, mentioned (1) that in the course of his transplantation of various sarcomata in the white rat he had observed a number of cases in which tumors developed as the result of contact of tumor cells with certain tissues. Especially noteworthy was the fact that tumors of similar structures differed widely in regard to the readiness with which contact metastases could be produced. Rapidly growing strains of sarcoma caused the formation of contact metastases much more frequently than slowly growing strains, although the macroscopical structure in both cases was almost identical. This fact is not without interest to the operating surgeon. (2) In a paper recently published in the *Journal of Medical Research*, he showed, with Dr. S. Leopold, that tumor inoculation into the same organisms in which the tumor originated might succeed, while inoculations into other individuals of the same species were unsuccessful and he pointed out that the same probably holds good for the majority of tumors, including tumors in man. For that reason contact metastases may still be produced, where inoculation into another individual would be unsuccessful.

DR. COLEY stated that it was possible that the tissues of an individual suffering from cancer, were more liable to infection from cancerous material, than in a healthy individual. This would seem to be shown by the very small number of cases in which the surgeon has apparently been infected during operation on cancerous patients.

The cases which he himself reported, together with the 25 cases reported by Ryall, certainly prove beyond any question that the cancerous cells have the power of autoinoculation, at least in individuals suffering from cancer. That this infection has the power of remaining latent for very long periods of time, is shown by his own experience in cases of late recurrence of cancer of the breast. He stated that he had observed three cases in which local recurrence had taken place within periods of from 12 to 17 years after operation. At the meeting of the American Surgical Association, a year ago, one case of local recurrence 20 years after operation was reported.

Dr. Coley further stated that, naturally, the question arises whether the cancer cell itself remains alive and dormant all these years, or whether it is a micro-organism of some sort which, as in tuberculosis, remains latent for long periods. In view of the recent observations of Ehrlich and Loeb, showing that it is possible for a carcinomatous tumor in animals to be transformed, in a single generation, into a sarcomatous tumor, there is some ground for accepting the theory of Ballonce of London, who believes that a single micro-organism may, under varying conditions, give rise to proliferation of epithelial cells at one time and connective tissue at another time.

(*To be continued.*)

AMERICAN ASSOCIATION OF GENITOURINARY SURGEONS.

Twenty-second Annual Meeting, held at Hot Springs, Va., May 1-2, 1908.

The President, DR. HARVEY G. MUDD, St. Louis, in the Chair.

Cases of Stricture of the Membranous Urethra.

DR. EDWARD L. KEYES, JR., New York, said that up to the end of the last century gonorrheal stricture was considered to be confined to the anterior urethra. By performing perineal prostatectomy surgeons have come to recognize strictures at the neck of the bladder; but, with the exception of the case reported by Bazy, attention has not been called to strictures of the membranous urethra, and that portion of the urethra now enjoys the distinction of being the one portion of that canal supposedly exempt from sclerotic infiltration. It is supplied with the glands of Littré, and therefore offers a good field for that gonococcal penetration into the tissues which is the foundation of gonorrheal stricture. Dr. Keyes reported in detail two cases recently operated on, in which there was very marked stricture of the membranous urethra. In the first case perineal section was performed with a guide and under cocain. The urethra being opened, a probe readily entered the membranous urethra, and this was cut on widely for about an inch—almost to the apex of the prostate—but even at this point nothing larger than a grooved director would enter the urethra. The second case was one of dense stricture in the bulbous urethra extending into the membranous urethra. This portion of the canal would take nothing larger than a 10 F. bougie. These two cases suggest that ancient neglected strictures of the bulbous urethra may often involve the membranous urethra as well. The presence of stricture in the mem-

branous urethra appears to add no danger or symptoms to that of the bulbous urethra. A more frequent use of local anesthesia will probably disclose the frequency of this condition.

DISCUSSION.

DR. HUGH H. YOUNG, Baltimore, said he thought that back of the posterior layer of the triangular ligament it is rare, indeed, to find any stricture, but that that portion within the triangular ligament is more commonly involved, and he has seen two or three cases in which that was the condition.

DR. BRANSFORD LEWIS, St. Louis, said he had met with stricture not only of the membranous urethra, but also distributed along the prostatic urethra, or both.

DR. SAMUEL ALEXANDER, New York, said he thought that we need not alter the generally accepted opinion that strictures of the urethra are in nearly all cases primarily limited to the anterior portion of the urethra; but the fact that strictures, not traumatic, of the membranous urethra do occur secondarily to stricture of the anterior portion of the urethra, has been well recognized for some time. Primarily there is a stricture of the anterior urethra, above that a dilatation of the membranous urethra, followed by infection of the glands of Littré, and then a secondary contraction of the membranous urethra. These strictures are always secondary to strictures of the anterior urethra, and due to a periurethral inflammation about the membranous urethra.

DR. JAMES PEDERSEN, New York, said his teaching had been that strictures of the membranous urethra do occur, and he asked if Dr. Keyes did not mean to present these cases merely as exaggerations of cases of stricture of the membranous urethra.

DR. KEYES said his teaching had been that strictures of the membranous urethra were solely traumatic and not gonorrheal. Until he heard Dr. Young's remarks, the only case reported that had been submitted to proof was the one reported by Bazy. Mild stricture of the membranous urethra probably occurs very frequently.

Common Errors in the Treatment of the Urethra and Bladder.

DR. JAMES PEDERSEN, New York, said that, excluding errors of judgment, errors in diagnosis and the accidents of normal instrumentation, there remains a high percentage of urethral and bladder cases which have been over-treated or erroneously treated by a conscientious physician who, all unwittingly, has thus fallen short of the attainable. The common errors in the treatment of the urethra and bladder may be classed under two heads—errors of omission and errors of commission. Under errors of omission may be grouped: Neglect of a prostatitis or seminal vesiculitis or both; neglect of the patients' general condition; failure to insist on sexual hygiene; failure to regulate his habits as to alcoholics, tobacco and coffee; inattention to the dietary and the quantity of water drunk. Under errors of commission may be placed: The use of the sound in the face of contraindications; over-frequent dilatation and over-dilatation; the unscientific use of irrigations in general; in particular, the use of intravesical irrigations before the chronic stage of a urethritis; the use of strong—that is, caustic, injections and instillations; the sudden emptying of a chronically overdistended bladder; the administration of methylene blue except as a placebo; and, finally, the use of undistilled water in making up solutions of silver nitrate. Numerous illustrative cases were cited.

Congenital Abnormalities of the Penis and Their Influence on the Acquisition and Course of Gonorrhea.

DR. E. WOOD RUGGLES, Rochester, N. Y., considered the various congenital abnormalities of the penis in detail, and mentioned illustrative cases. This, more than any other organ of the human body, is subject to the most varied changes in development and in appearance.

Disturbances Due to Disease of the Verumontanum and Its Treatment with the Posterior Urethroscope.

DR. GEORGE K. SWINBURNE, New York, described the symptoms due to disease of the verumontanum, presented his posterior urethroscope for treating such conditions, and went into detail regarding the treatment. He uses silver nitrate, 10 per cent., or argentamin, full strength. Applications are made not oftener than once a week. Work on the posterior urethra through the urethroscope during the past eight or nine years has convinced him that it is a valuable aid and a distinct advance in the treatment of trouble in that portion of the genito-urinary tract, and that many obscure symptoms may be found to be due to disease or to some pathologic condition of the verumontanum, or of the urethral floor in its immediate vicinity. He prefers the instrument with the Koch auxiliary chamber because it keeps the lamp out of the way while swabbing the mucous membrane.

Operative Treatment of Tumors of the Bladder.

DR. LOUIS E. SCHMIDT, Chicago, said that since he presented his paper last year he had had eleven cases of tumor of the bladder, four of which had come to operation. In those four he had carried out the precepts laid down in the former paper, and he sees no reason to change the conclusions set forth in that paper. These are: (1) All benign tumors of the bladder should be approached from the inside of the bladder, and all malignant tumors from the outside. (2) In all malignant cases in which the loss of substance is not too great, the bladder should be closed completely by sutures after the removal of the tumor. (3) In cases of malignant tumor the incision into the bladder should be made in accordance with the location of the growth as defined by the cystoscope. (4) The permanent catheter should be abolished. (5) Gas anesthesia should be employed exclusively. (6) A subsequent cystoscopic surveillance should be maintained over any bladder that has been operated on for tumor.

Fatal Case after 128 Successful Perineal Prostatectomies.

DR. HUGH H. YOUNG, Baltimore, gave the details in this case and showed the kidneys, ureters and bladder. He said that the point he wished to emphasize was that there are certain cases that should not be operated on at once, particularly cases that have not been catheterized, although the urine may be of good quality when first examined. In these cases there is apt to be anuria or marked disturbance in the function of the kidneys, because they will not secrete so fast as they do when working against pressure. When the pressure is removed, a kidney which has been working against pressure for years will stop working.

Urethrorectal Fistulas.

DR. SAMUEL ALEXANDER, New York, read a paper on: (a) "An Operative Device for Urethrorectal Fistulas, (b) The Restoration of Voluntary Control of the Urogenital Sphincter in Incontinence of Urine Following Operations on the Prostate." He operates on urethrorectal fistulas as follows: A curved incision is made in front of the anus, extending from one tuberosity of the ischium to the other; the central portion of the perineum is divided and the dissection is carried upward between the rectum and the prostate, so as to expose the wall of the rectum externally for at least one-half inch above the upper margin of the fistula; the edges of the fistula are separated from the urethra by cutting with a sharp knife and scissors; the edges of the urethra at the seat of the fistula are carefully freshened, but the urethra should not be sutured; the tissues about the fistulous opening in the rectal wall are then freshened with curved scissors and made smooth; the opening in the rectal wall is closed by interrupted Lembert sutures of chromicised catgut placed from the perineal side; the sutures should not include the mucous membrane of the bowel. To protect the line of suture in the rectal wall, the following expedient is used: A small triangle of gauze consisting of six or eight layers is made to fit the wound. The apex of this triangle is carried by forceps into the vesical orifice. Between the layers of gauze a 10 per cent. iodoform ointment, made with petrolatum, is then injected from a glass syringe between the layers of the gauze, and the little pad is then plastered down so as to fit the posterior surface of the perineal wound accurately.

In restoring voluntary control the principle of treatment is to make the individual learn by practice to exercise voluntary control over what remains of the urogenital sphincter, thus preventing the escape of urine. If this can be done, automatic

control follows as a physiologic necessity. Any atonic or damaged muscle may be made to act, and the power of its action gradually increased by proper exercises.

Suture of Urethral and Vesical Sphincters for Incontinence of Urine.

DR. HUGH H. YOUNG, Baltimore, reported this case. The patient had had a perineal urethrotomy performed by another surgeon fifteen months previously, and was suffering from pain and incontinence of urine. Local treatment by massage of the prostate and dilatation of the urethra made him worse. It was evident that in the previous operation both sphincters had been divided. Preliminary suprapubic cystotomy showed the vesical sphincter to be gaping, so that the index finger could be easily introduced. After excising the mucous membrane in the lower half, the ends of the muscle were caught with tenaculum forceps and drawn together with catgut sutures. A large mass of scar tissue was found in the perineum, and a considerable portion of this was excised on each side, along with some urethral mucous membrane. The dissection was carried well out on each side until healthy looking muscle was reached, and the ends of the muscle were approximated with catgut sutures and the wound closed. Both suprapubic and perineal drainage were provided for, the latter by means of a small catheter which emerged from the anterior angle of the wound in the bulbous urethra. The convalescence was satisfactory, and although it has been necessary to dilate for stricture at the site of the operation, yet the patient has regained perfect control over his sphincters.

Antigonococcic Serum.

DR. GEORGE K. SWINBURNE, New York, read this paper. Since June, 1906, he has used the serum almost without interruption on a large variety of cases. Since September, 1907, he has treated 69 cases, 41 dispensary and 28 private cases. The serum was used in 14 cases of chronic relapsing epididymitis, 10 of which were dispensary cases, and in almost all there was marked improvement. The striking relief noted was in the diminution or quick cessation of the pain. In the cases of acute epididymitis, 27 in all, the majority were relieved of pain within forty-eight hours, and almost all went on to uninterrupted recovery. There were 4 cases of muscular rheumatism in connection with chronic gonorrheal disease treated with the serum. Two were relieved and 2 received no apparent benefit. There were 10 cases in which there was muscular rheumatism with apparent involvement of one or more joints. The majority of these yielded promptly, 1 was not relieved, and 2 were but slightly improved. Five cases of pure joint lesions were treated, and responded promptly to the serum. They all followed a primary attack of gonorrhea. In 2 cases of gonorrheal kidney in which the serum was used there was no improvement. Though the serum is supposed to have no power over the gonococcus, yet in 2 cases of persistent presence of gonococci in the urethral discharge the organisms disappeared after the use of the serum. In 1 case of acute prostatitis in which the serum was used once a day for three days, there was relief of the pain and throbbing. It was used in 1 case of acute vesiculitis with immediate benefit.

DISCUSSION.

DR. LOUIS E. SCHMIDT, Chicago, has used the serum treatment in a number of cases of prostatitis and epididymitis, and has noted all kinds of complications during the course of the serum treatment with no benefit whatever.

Operative Treatment of Acute Gonorrheal Epididymitis.

DR. FRANCIS R. HAGNER, Washington, gave a further report. He published his original paper in the *Medical Record*, Oct. 13, 1906. The operative treatment of gonorrheal arthritis was the procedure that suggested operative intervention in these cases. In every case operated on fluid had been present in the tunica vaginalis, varying in amount from two drams to two ounces. This fluid resembled that seen in gonorrheal joints, in that it was usually slightly blood-stained and contained a varying amount of fibrinous material in which are entangled a few leucocytes. The parietal layer of the tunica vaginalis was congested. That portion over the epididymis was intensely so, and seemed to be the seat of small punctate hemorrhages. In a number of cases the entire epididymis was covered with a false membrane. It is the exception if this condition does not exist to some degree. The relief from pain and the rapid absorption of the inflammatory exudate seem to be just as great whether or not pus is obtained. Only the severest cases have been operated on. Since March, 1905, he had operated on but 19 cases, not more than 10 per cent. of the patients of this class. There was but one case that was not relieved absolutely of all pain on recovery from the anesthesia. There was a remarkable difference between the condition of the patients before and after operation. It is interesting to note the fall in the leucocyte count, which in one case dropped from 33,000 to 8,400 in forty-eight hours. There was a parallel fall of the temperature and pulse rate. There had been no cases of infection following the operation, recurrence, atrophy of the testicle, or other distressing sequelæ. In every case the temperature had been lower after operation than before. Pus was present in 17 of the 21 cases, being in the globus minor in 12, in the globus major and minor in 3, in the globus major in 1, and in the tunica vaginalis in 1 case. Of these 21 cases, gonococci were demonstrated five times in the pus from the epididymis, and once from the tunica vaginalis when none could be found in the epididymis. One of the most remarkable effects of this operation is the very rapid disappearance of the induration in both the cord and the epididymis. The wound is usually healed in less than a week. None of the patients have had the hard, nodular condition of the globus minor lasting for a long time, such as persists so frequently in those treated without operation. On an average, the patients are up and about and free from pain in five days. The urethral discharge does not increase afterwards.

DISCUSSION.

DR. SAMUEL ALEXANDER, New York, said he had employed this operation extensively in the service at Bellevue Hospital, and had achieved very nearly, although not quite, as good results as Dr. Hagner had reported. In five cases of acute epididymitis complicated with prostatic abscess pure cultures of the streptococcus were found.

DR. J. H. CUNNINGHAM, JR., Boston, has done the operation in six cases, and has observed the same quick relief that Dr. Hagner reports. Some induration remained, however, and in four of the cases the urethral discharge returned.

Other Cases Reported.

DR. J. BENTLEY SQUIER, New York, reported some unusual cases; DR. VAN DER POEL, a case of teratoma of the testis; and DR. HUGH CABOT, Boston, the case of a man, 50 years old, in whom varicose veins of a papilla of the kidney were a cause of persistent hematuria.

NEW HAMPSHIRE MEDICAL SOCIETY.

One Hundred and Seventeenth Annual Meeting, held at Concord, May 14-15, 1908.

The President, DR. J. H. NEAL, Portsmouth, in the Chair.

Standard Reorganization Adopted.

The House of Delegates had its first meeting the night before the opening of the sessions of the society, with a very creditable attendance. The report of the secretary contained some valuable suggestions, which were referred to a special committee; the committee subsequently recommended an approval of the election of alternate delegates by the component county societies, the publication in one volume of the earlier transactions of the society, and advised the appointment of a committee on the subject of education and the enlightenment of the public on sexual matters and venereal diseases. The last recommendation was laid on the table by the House, and the matter of organization of a branch association, referred by the Secretary of the American Medical Association, was deemed unadvisable at present.

The report of the Committee on Revision of the Constitution, appointed one year ago, read by Dr. Ira J. Prouty, Keene, the Chairman, suggested a number of amendments, the leading one being the adoption of the component county society

idea. After a free interchange of opinions, the amendments as a whole were adopted, to go into effect May 1, 1909, the beginning of the next fiscal year; so that on that date, the New Hampshire Medical Society, after five years' consideration of this very important question, will place itself in complete harmony with practically all other state societies.

It was unanimously voted to send the secretary, at the expense of the society, to the meeting of the state secretaries, at Chicago, June 1, and a liberal appropriation was made for clerk hire for his office, in view of the increased work necessitated by the new order.

State Tuberculosis Sanatorium.

In 1902, the society, through a representative committee, heartily advocated legislation by the state, establishing a state sanatorium for consumptives; but, notwithstanding early and favorable action by the legislature, not even a site for its location has yet been accepted by the governor and council. A strong resolution, introduced by Dr. John W. Parsons, of Portsmouth, and unanimously adopted by the House of Delegates and the society in general session, called on the executive officers for immediate relief for these unfortunates. Drs. Smith of Hanover, Parsons of Portsmouth, Crossman of Lisbon, Morse of Newmarket, and Flanders of Dover, were appointed a committee to carry into effect the purposes of the resolution.

The reports of the treasurer and trustees showed the financial condition to be sound and substantial, there being to the credit of the society more than $4,500.

Twenty-nine new members have been elected; six have died during the year, and three have been dropped for non-payment of dues—a net gain of twenty.

The Committee on Medical Defense was continued for another year, and specific instructions were given to the Committee on Legislation, to secure a law providing for the appointment of expert medical witnesses by the court.

The next meeting will be held at Concord, May 13-14, 1909.

Officers for 1908-09.

The following officers were elected:

President—Dr. John M. Gile, Hanover.
Vice President—Dr. Frank Blaisdell, Goffstown.
Secretary—Dr. D. E. Sullivan, Concord.
Treasurer—Dr. D. M. Currier, Newport.
Delegate to A. M. A.—Dr. William T. Smith, Hanover.
Alternate—Dr. F. A. Stillings, Concord.
Councilors—Dr. A. H. Harriman, Belknap county; Dr. M. S. Woodman, Grafton county.

Relations of the Medical Profession to the Public.

The general meeting was called to order by the president at 11 o'clock, May 14.

After the appointment of committees and the introduction of visiting delegates, the president delivered the annual address. While giving due credit to the long strides taken in the treatment of disease—such diseases, for instance, as pneumonia, tuberculosis, diphtheria, etc.—he stated: "Preventive medicine is the branch of medicine which has led the profession into a field in which it has beocme a great factor in the industrial world. Through this the profession has performed a service which could not have been accomplished by any other agency. In this field we have produced results, the attainments of which have made the world pause with astonishment and awe. I heard Secretary Taft say before the Washington State Medical Association in Seattle last September," continued the speaker, "that the medical profession had made it possible for the United States to construct the Panama Canal, and that is the most gigantic proposition which has been contemplated in this, 'The Age of Progress.'"

The orator called attention to the great progress which has been made in the treatment, or, rather, the prevention of yellow fever, stating that thoroughly practical methods will now prevent the disease in any locality. Speaking of smallpox, he said that the death rate from this disease is about one-seventieth part of the death rate of pre-vaccination times, the severity of the disease also being lessened, as a consequence of the partial immunity inherited as a result of vaccination in previous generations. "There is every reason to believe," said the speaker, "that general and repeated vaccinations would stamp this disease from the face of the earth. But there will always be a few demagogues, a few disbelievers, and a few fools, and for this reason the profession will be obliged perpetually to wage war against this scourge."

Typhoid fever, tuberculosis and diphtheria were also discussed and the author urged on the profession the duty of educating the public in modern hygienic principles, at the same time commending the faithfulness and unselfishness with which physicians ever seek to prevent disease putting their most strenuous efforts into work for the good of humanity, which often reduces their own finances.

Hospital abuse, so-called, was next considered, the responsibility for which was placed squarely on the physician himself. "Does he tolerate the abuse," asked the speaker, "as a result of his philanthropic instinct, over which he has no control? Such an assumption is ridiculous. He renders his services to the rich and the poor alike for the prestige which he hopes to obtain as a result. He robs his brother of his legitimate means of livelihood and at the same time croaks at his own contemptible conduct. He not only tolerates the abuse, but he aids, abets, and assists to the fullest extent of his ability in continuing it. When the medical profession, individually, shall say to all people and to all corporations, 'We will render to all alike the best service that lies within us, whether rich or poor, demanding from all who are able a fair recompense, and from those who are not able, no recompense,' then, and not earlier, will the requiem of the hospital abuse be sung."

He further said that while the fact is well recognized that the results from medical expert testimony are far from satisfactory, and the knowledge of this condition of affairs is a source of regret and shame to every honest physician, for which he had no disposition to offer an apology, yet the responsibility rests only in part with the physician. The speaker denounced emphatically the evil which tends to exaggerate to the public eye that for which the profession is responsible—that is the method pursued by the lawyers before the courts in distorting the physician's testimony to suit the ends of their case, with the result that medical expert testimony is ridiculed by the press and the public in general.

Present Understanding of Non-tuberculous Joint Disease.

DR. JOEL E. GOLDTHWAIT, Boston, said that it must be recognized that the body is a machine, and that the adjustment of that machine depends on just as perfect balance as the adjustment and successful operation of an automobile, and no one with wisdom would think of operating an automobile if its axle or some other part were twisted or out of order; for, though a man might make the thing go, it would mean too great a strain on the tire in places, and one would know that sooner or later he would overturn the machine. In like manner, if the human machine is used in such a way that the balance of the body is disturbed, undesirable consequences result.

Remember that this subject is not worked through. Remember that rheumatism is not an entity, that many of the conditions are purely joint conditions, many are muscular conditions, but there is some way of finding out what those conditions mean, and it is up to you and me as physicians to bring intelligence and common sense and skill to bear in the treatment. A great many conditions we can relieve right off; a great many of the others we can control. Some of them we fail to control, but that is true of all classes of medicine at the present time I believe, and I believe that this class will get smaller and smaller the more we study such cases. It is for you, in general practice, who see these cases in the beginning, not to wait till the patients are in great danger and then bring them to the specialist to make them well, but get at them in the beginning before that disease has gotten hold of them to any extent, and then you can restore your patients to normal health with much satisfaction.

DISCUSSION.

DR. S. S. DEARBORN, Nashua, said that if we are not to mistake arthritis, we must be on the alert to recognize it. If we assume that rheumatism is due to infection, the connection between it and the condition of the fossæ becomes obvious.

(To be continued.)

AMERICAN NEUROLOGICAL ASSOCIATION.

Thirty-fourth Annual Meeting, held at Philadelphia, May 20-22, 1908.

The President, DR. CHARLES W. BURR, Philadelphia, in the Chair.

(*Continued from page 69.*)

Localized Epileptic Convulsions without Gross Lesions of the Cortex of the Brain.

DR. HERMAN H. HOPPE, Cincinnati, confined his remarks to cases showing genuine epileptic convulsions and not those of the Jacksonian or reflex type. Only cases in which the physical examination was negative were selected. In one class of cases there develops, without previous epilepsy, a status hemiepilepticus which results fatally in a short time. In these cases operation is futile. It is often difficult, even after prolonged observation, to decide whether a given case of localized epileptic seizure is due to an organic lesion or not, as there are so many forms of trauma and disease which may cause an organic lesion. We must conclude, however, that these are cases which are not produced by organic lesion. When the loss of consciousness occurs first and the convulsions follow and are limited to a small group of muscles they are undoubtedly epileptic and not Jacksonian. There is a second class of cases in which attacks recur for years and in which there is no progression. The attacks always occur in the same way. In Jacksonian epilepsy there is steady progression. Differentiation must also be made from hysterical epilepsy.

DISCUSSION.

DR. L. PIERCE CLARK, New York, stated that in a series of 11 cases of status hemiepilepticus at the Craig Colony there was only one death. It is not uncommon for patients of this type to go through attacks 15 times or more. He thinks that the cases mentioned by Dr. Hoppe are not without suspicion of organic lesion. He believes that the underlying lesion in focal epilepsy is a chronic meningoencephalitis.

DR. E. E. SOUTHARD, Boston, thinks that the possibility of bacterial etiology should be looked into in these cases.

DR. W. G. SPILLER, Philadelphia, thinks that in cases of doubt as to the presence of an organic lesion, operation should be done early, even if it turns out to be only exploratory, for in case of tumor, success can be assured only by early operation.

DR. B. SACHS, New York, stated that many cases of epilepsy are due to lesions sustained early in life. That there is some change either microscopic or macroscopic we must maintain until there is strong evidence to the contrary. In a case in which focal epilepsy comes on suddenly in an individual who has never had epilepsy before, the idea of operation might well be entertained.

DR. J. J. PUTNAM, Boston, said that in these cases, while there is no local lesion, there is an area of maximum irritability.

DR. F. X. DERCUM, Philadelphia, stated that in a disease so hopeless as epilepsy, operation should be done if there is only a shadow of a chance of its doing good.

DR. C. K. MILLS, Philadelphia, said that the more the question of operation is studied, the greater the success. A species of Jacksonian epilepsy sometimes occurs inside the general epileptic attack, and when this is the case, operation is indicated.

DR. HOPPE agreed that microscopic changes could perhaps be found in all cases of so-called idiopathic epilepsy. He believes in operation in the cases Dr. Spiller spoke of, but his cases were not of that kind.

Sane Prototypes of Insane Mental Processes.

DR. THEODORE H. KELLOGG, New York, said that insanity is never a spontaneous mental variation, but is always evolved on persistent lines of mental action. All insane mental processes have their correlative sane prototypes which have not been adequately studied. He compared the insane mental processes with their sane prototypes in the following order: Delusions of the sane as the casual prototypes of the false beliefs of the insane; extremes of conduct of the insane as uniformly modeled after sane exemplars; insane emotions, propensities, and impulses as directly derived from their sane prototypes; the hallucinations and illusions of the insane as mere projections of the prototypic sensorial disorders of sanity.

DISCUSSION.

DR. H. R. STEDMAN, Boston, said that the only mental conditions it seems hard to trace are the perversions of instinct, such as sexual perversions, and the eating and drinking of loathsome things.

The Course of Sensory Impulses in the Spinal Cord.

DR. CARL D. CAMP, Ann Arbor, Mich., said that other sensations than pain and temperature, as first taught by van Gehuchten, are conveyed in the spinal cord by fibers which take their course in different parts of the cord. Pain sensation enters the posterior horn by the posterior roots and ascends in the gray matter for variable distances varying from 2 to 8 segments, crosses in the posterior commissure, and ascends in Gowers' tract to the cerebrum either directly or indirectly. Heat and cold enter by the posterior roots and follow the same course as pain, but by distinct and separate fibers. Tactile sensation enters by the posterior roots and passes up in the posterior columns on the same side without decussation. The sense of position comes from the joints; of motion from the muscles. These enter by the posterior horn, run to the cells in Clark's column, possibly ascend in the gray matter of the same side for a number of segments, and then pass up in the direct cerebellar tract of the same side.

Diagnosis of Epilepsy and Dementia Præcox.

DR. L. PIERCE CLARK, New York, presented the results of a joint study with Dr. E. W. Scripture on the epileptic voice in which they had found a characteristic and constant loss of melody. The epileptic speech is "plateau" in form. No other nervous or mental disorder shows the epileptic voice type. The voice sign is dependent on the chronic exhaustion or degeneration of those cortical elements which constitute the brain pathology of epilepsy proper. In three-fourths of all cases of epilepsy one may detect the voice sign without any other knowledge of the disorder being present. Dr. Clark also showed four colored drawings of the fundus changes found by Dr. Tyson and himself in all cases of dementia præcox. He laid stress on the point that one must not consider all the signs and symptoms of the eye syndrome to depend on the syndrome in prognosis and diagnosis of this psychosis.

The Symptom-Complex of Occlusion of the Posterior-Inferior Cerebellar Artery.

DR. WILLIAM G. SPILLER, Philadelphia, enumerated in detail the symptoms of this lesion.

Thrombosis of the Posterior Inferior Cerebellar Artery with Autopsy Revealing the Lesion in the Medulla.

DR. HENRY M. THOMAS, Baltimore, referred to several cases reported in 1896. The second patient died two and a half years after onset of symptoms; autopsy was refused. In a third case, a man of 59, who, a week before entering the hospital had intense giddiness, pain in left side of face, difficulty in talking and swallowing, drooping of left eye, and weakness of left face, the examination showed an extremely ill man, with marked vascular, cardiac and renal involvement. Sensorium dull. Constant hiccough. Left pupil smaller than right. Slight left ptosis. Slight divergent squint of left eye. Dissociated sensory disturbance on left face, right arm, and leg. No sweating of left side of face. Death in four days. Autopsy, among much else, revealed thrombosis of left posterior inferior cerebellar artery.

Discussion on Papers of Spiller and Thomas.

DR. B. SACHS, New York, said that he had a case of unquestionable thrombosis of the inferior cerebellar artery a short time ago; the patient has practically recovered.

DR. T. DILLER, Pittsburg, said that he had seen three or four such cases.

DR. CHARLES E. BEEVOR, London, Eng., said that he had not come across any case similar to those described.

DR. D. J. MCCARTHY said that it should be borne in mind that there is a wide variation in the posterior branches given off by the circle of Willis, hence the symptoms may differ greatly depending on which vessels are involved.

DR. SPILLER said that the symptom group he described is so striking that if it is kept in mind a diagnosis could be made without difficulty.

DR. THOMAS agreed with Dr. Spiller and said that about 30 cases could be collected, both with and without autopsy, showing this sharp cut symptomatology.

A Case of Myasthenia Gravis with Negative Pathologic Findings.

DR. J. ARTHUR BOOTH, New York, reported the case of a lad of eleven years who presented the familiar symptom-complex of the disease with a rather acute invasion, following an operation for adenoids. Death occurred from failure of respiratory musculature. Examination of the central nervous system was negative and specimens taken from muscles and nerves did not show anything abnormal. Thyroid, parathyroids, and pituitary glands were normal; there was slight simple hypertrophy of thymus gland

DISCUSSION.

DR. N. E. BRILL, New York, regards the enlargement of the thymus in this case as distinctly pathologic. Abnormalities of the thymus occur in 20 per cent. of the cases of myasthenia gravis.

DR. W. G. SPILLER, Philadelphia, recently had a patient found to be eliminating an excess of calcium chlorid in the urine. He was put on calcium chlorid, with distinct improvement.

DR. BOOTH does not agree with Dr. Brill that the thymus in his case was pathologic.

Rest Treatment in Relation to Psychotherapy.

DR. S. WEIR MITCHELL, Philadelphia, read this paper which appeared in full in THE JOURNAL, June 20, page 2033.

DISCUSSION.

DR. F. X. DERCUM, Philadelphia, said that the rest treatment was certainly original with Dr. Mitchell and that the only remarkable fact about the method is that it makes use of simple physiologic means. The danger in the newer methods of so-called psychotherapy is that they will be used to the neglect of physiologic means.

DR. J. J. PUTNAM, Boston, said that no small factor in Dr. Mitchell's success is his glorious courage and inspiring personality. He agreed with Dr. Mitchell that neurasthenia is often purely physical in nature.

DR. CHARLES L. DANA, New York, said that Dr. Mitchell's colleagues have never questioned the value of this original contribution to therapeutics. In reference to psychotherapy it is true that many people are going to the wrong place for treatment and that physicians should acquire a knowledge of all that is good in the way of treatment by whatever name it is called and be prepared to use it.

DR. B. SACHS, New York, thinks that the association should stand in opposition to the psychotherapy idea as recently developed, because it has been horribly overdone, but that physicians should go along as they have always done exerting their influence often perhaps unconsciously, but nevertheless with good effect. He does not think it necessary to coin any new terms.

DR. CHARLES E. BEEVOR, London, stated that in England the Weir Mitchell treatment is used with the greatest success; also that psychotherapy has not, up to the present time, invaded England.

DR. PHILIP COOMBS KNAPP, Boston, endorsed absolutely everything that Dr. Mitchell said. The physical condition of the patient is too often overlooked. The most important thing is to put the patient on the best possible physical basis.

Data Regarding Paresis and Brain Disease in Railway Employés.

DR. PHILIP COOMBS KNAPP, Boston, as chairman of a committee appointed to collect data as to the existence of general paresis and general brain diseases in railway employés, reported that the committee had gone far enough to learn that those diseases are sufficiently prevalent to constitute a grave danger to the traveling public and that it would be desirable to have locomotive engineers and train dispatchers examined regularly by competent neurologists.

The Types of Encephalitis.

DR. E. E. SOUTHARD, Boston, considered only the exudative forms of encephalitis which fall into three groups: (1) Acute, including coccal and typhoid forms; (2) subacute, including tuberculous and luetic forms; (3) the progressive form, or dementia paralytica.

Occupation Neuritis of the Deep Palmar Branch of the Ulnar Nerve.

DR. J. RAMSEY HUNT, New York, described this well-defined clinical type of occupation atrophy of the hand with the following clinical characteristics: (a) Atrophic paralysis of the intrinsic muscles of the hand, supplied by the deep palmar branch of the ulnar nerve; (b) reactions of degeneration in the intrinsic muscles of the hand, supplied by the deep palmar branch of the ulnar nerve; (c) no objective sensory disturbances of the hand or fingers. They are to be regarded as due to compression neuritis of the deep palmar branch of the ulnar nerve as it passes between the muscles of the hypothenar region on its way to the deeper structures in the palm.

DISCUSSION.

DR. F. W. LANGDON, Cincinnati, thinks that there is a tendency erroneously to ascribe this condition to progressive muscular atrophy.

DR. PHILIP COOMBS KNAPP, Boston, said that Dr. Hunt's careful work and his explanation are very convincing, and that these cases have been described as beginning spinal myelopathy.

Confusional Insanity and Dementia Præcox.

DR. PHILIP COOMBS KNAPP, Boston, stated that too sharp a distinction has been drawn between confusional insanity and dementia præcox, so-called, in the endeavor to establish two distinct diseases. The confusion of the former and the stupor of the latter are only two stages of what is really the same disease. One is a disturbance of projection, and the other of perception. The pathogenesis of these conditions has not yet received sufficient study. Intoxication and exhaustion play an important rôle. The so-called dementia præcox is not always precocious, as it may begin after fifty, neither does dementia always occur. Dementia præcox, as a term characterizes the disease too strongly as hopeless, for it is not ordinarily progressive, and is sometimes curable.

Facial Paralysis.

DR. G. A. WATERMANN, Boston based his paper on a number of cases of peripheral facial palsy. There was very slight difference in the side or sex affected or in the season of the year. However, exposure to cold and drafts played an undoubted causative rôle; as did also the toxins of syphilis, nephritis and the like. Ear disease also played a part. The character of pain at the beginning was of no prognostic import.

Prognosis of Spinal-Cord Tumors with Operation.

DR. WILLIAM C. KRAUSS, Buffalo, N. Y., said that the first operative case of spinal-cord tumor was that of Gowers and Horsley in 1888. There was one series of 50 cases in the first 10 years; a second series of 50 in the next 5 years, and a third series of 50 cases in the next 5 years. The prognosis has gradually grown better and better, and is especially good in cysts and sarcoma.

Delayed Apoplexy (Spätapoplexie) with Report of a Case.

DR. A. R. ALLEN, Philadelphia, concluded that traumatic delayed apoplexy is an entity; that it may be due to an occlusion of the arteries; that when hemorrhage occurs it is not due to necrosis outside of the artery, and that the arterial changes are the result of the trauma.

Medicolegal

Check Interposed to Use of Property for Tuberculosis Sanitarium.

The Supreme Court of North Carolina had, in the case of Cherry vs. Williams, an action to enjoin the erection and use of buildings on a certain lot, in the city of Greensboro, for a sanitarium for the treatment of tuberculosis, etc. The defendant, admitting his purpose to construct and use buildings for the treatment of consumptives, and at the place indicated, offered a large amount of evidence, including affidavits of specialists, eminent in their profession, and in the treatment of tuberculosis in hospitals and otherwise, to the effect that "a sanitarium for the treatment of consumptive patients, located in the city of Greensboro, properly maintained and conducted, would not be a menace to the health of the community in which it is situated, nor to the public health; that such sanitariums are conducted in large and populous cities all over the country where the climate is suitable for the patients, and that experience has shown that such sanitariums are not a menace to the public health, but rather a benefit;" that the proposed locality was not thickly populated, and consumption is not contagious, nor an infectious disease; and that the defendant was qualified to conduct the proposed sanitarium properly and intelligently. But the court thinks that the conditions suggested, if established, would come well within the definition of an actionable nuisance, and, if there was a well-grounded apprehension that neighbors would be unreasonably exposed to serious danger from a disease of the nature of consumption, the temporary injunction should be continued to the final hearing. The injury threatened in such case would be irreparable. It says that the authorities in that state will uphold the position that, when there are facts in evidence which give good reason to believe that the owner of property in the residential portion of a thickly settled vicinity is about to devote it permanently to a use which imports serious menace to the health of the owners and occupants of adjacent property, such use should be restrained until the facts on which the rights of the parties depend can be properly determined at the final hearing of the case.

In this case there was evidence on the part of the plaintiff, direct and specific, that the erection and use of a hospital in that particular locality, in the manner and for the purpose proposed, would be a source of real danger to the lives and health of numbers of people living in that vicinity, and while the affidavit of the defendant himself made specific response, a large portion of the supporting evidence offered by the defendant was very general in its terms, and made without reference either to the special locality or to the special manner in which the particular hospital was to be constructed and carried on.

If the defendant desired to proceed with the construction of his buildings and risk the results of the trial, the restraining order might be modified to that extent, but any and all use of the buildings for the purposes indicated should be restrained to the hearing.

A Physician Suing for Services is Subject to Cross-Examination.

The Supreme Court of Colorado says, on the appeal of Purse vs. Purcell, that the latter-named party, a licensed physician, brought this action to recover the reasonable value of professional services, which, at the defendant's request, he rendered to the defendant's children who were sick of scarlet fever.

The answer denied that the services were of any value whatever, and alleged that the plaintiff prescribed for and attended five of the defendant's children, two of whom the defendant admitted, had scarlet fever and diphtheria, and said the others had diphtheria, but not scarlet fever—though the plaintiff treated all of them only for the latter—and that, by reason of the defendant's negligence, or want of skill, in making the proper diagnosis and prescribing the appropriate treatment, three of the children died. Substantially the same matters, alleged as a defense, were set up in two separate cross-complaints or counterclaims, in each of which the defendant asked judgment against the plaintiff in the sum of $5,000 for malpractice.

The court is clearly of opinion that a case of malpractice was not made out by the evidence. Indeed, the defendant did not in his brief press his claim in that behalf, apparently because his own expert evidence precluded a judgment in his favor. It also says that, in the absence of any evidence of value to the contrary, or of evidence inconsistent with the plaintiff's testimony as to the extent or character of the services, it might be that the jury ought to find in the plaintiff's favor for the amount claimed. But it thinks that prejudical error was committed in limiting the scope of the cross-examination of the plaintiff by the defendant's counsel, for had the questions on cross-examination been allowed, and the plaintiff required to answer, the jury might have found, on substantial evidence, that the services were of less value, or not so extensive as the plaintiff said they were.

The plaintiff, the court says, testified in his own behalf merely to the effect that he was a licensed physician and had, at the defendant's request, attended the latter's children, and that the bill for which he sued was the customary and reasonable fee, no part of which had been paid. In his complaint he alleged that the children were sick with scarlet fever, and that the services rendered were on that account. On cross-examination he was asked, among other things, by the defendant's counsel, what was the matter with the children, what medicine he gave them, and was asked to describe to the jury their symptoms, and all the indications of disease which they exhibited. As throwing light on the extent and value of the services, as well as bearing on the diagnosis and method of treatment, it was competent under the issues to ask such questions.

The questions propounded were germane to the first defense of the answer, which denied that the services which the plaintiff rendered were of any value to the defendant. It was necessary for the plaintiff to prove that his services were of value, and when he himself testified as to that issue, the defendant might properly, by cross-examination, ask what the services were, and what the plaintiff did, and as to the symptoms and nature of the malady from which the children were suffering.

But if the questions propounded by the defendant had been answered by the plaintiff, it might be that there would have been evidence before the jury from which they might have concluded that the plaintiff's services were not so valuable as he claimed them to be.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal.

June 25.

1 *Surgical Shock. G. Crile, Cleveland, Ohio.
2 Achondroplasia. W. N. Bullard and A. W. George, Boston.
3 Alpha-monobrom-Isolvalerylurea. A New Nerve Sedative and Somnifacient. W. H. Porter, New York.
4 *Local Treatment of Acute Inflammations of the Throat from the Standpoint of Pathology. J. L. Goodale, Boston.

1. **Surgical Shock.**—Crile omits theoretic discussion and deals with certain phases of shock in their relation to surgical practice. Repeated and accurate observations on the blood picture may differentiate between hemorrhage and shock. He discusses certain preventable factors, dwelling particularly on the psychical element which does not receive adequate attention, and warns against overanesthesia.

4. **Inflammations of the Throat.**—Goodale thinks that in a beginning tonsillitis antiseptic applications may perhaps be used with benefit and their effect, if any, will be to abort the local infection. If the disease is not checked at the outset by the sterilization of the parts, but proceeds to the formation of white spots in the crypts with systemic involvement, further application of antiseptics may be not only useless but

harmful. It would appear possible that antiseptics may retard convalescence in two ways: First, by diminishing the number of bacteria in the crypts, which are generating toxin, and consequently prolonging the period required for the formation of the requisite amount of antibodies; second, by their destructive action on the tissue cells and phagocytic leucocytes of the host. Forcible application of antiseptics may be followed by increased fever and cervical adenitis, indicating heightened absorption of toxin into the system. This phenomenon may be compared to the depression which follows the infection of too large a dose of vaccine in patients undergoing opsonic treatment. In certain cases in which acute tonsillitis appears to be aborted by local antiseptics, inflammatory manifestations may follow after a day or two in the neighboring regions and last for a number of days or several weeks. Here, the possibility is suggested that the checking of the tonsillitis checked also the establishment of immunity, and that for its final accomplishment a longer period of growth of the organism on the membranes of the nose, larynx, trachea or bronchi was necessary. In this connection may be recalled the protracted duration of nasal diphtheria, as compared with the relatively brief time occupied by the pharyngeal disease.

Medical Record, New York.

June 27.

5 *Method of the Spread of Yellow Fever. W. C. Gorgas, Ancon, Canal Zone.
6 *Influenza: Its Diagnosis from a Morphologic Standpoint in Stained Specimens of Sputum. G. W. Stiles, Washington, D. C.
7 Liver Symptoms in Cardiac Disease. L. F. Bishop, New York.
8 Adverse Suggestion. A. F. Riggs, New York.
9 Relation of Pleurisy to Pulmonary Tuberculosis. H. S. Goodall, Lake Kushaqua, N. Y.

5. **Yellow Fever.**—Gorgas describes the methods used in suppressing yellow fever in Havana and in the Canal Zone. He shows how the reduction in numbers of the stegomyia, even though short of extinction, can eliminate the disease. With a hundred stegomyiæ to the square yard the introduction of a yellow-fever patient means the probable infection of many mosquitoes which will convey the disease to non-immunes present in the community, and each fresh case is likely to infect more mosquitoes and through them more non-immunes. As the number of mosquitoes is gradually reduced to 50, 25 and 15 to the square yard, the chances of an epidemic become smaller and the epidemic itself milder. By the time the mosquitoes are reduced to 10 per cent. of the original number, even if a yellow-fever patient is introduced, the chances of his being bitten, and thus infecting a mosquito, are minimized; and while it is possible with ten mosquitoes to the square yard for one mosquito to become infected and give yellow fever to some other non-immune in the same house, it is not probable that this second yellow-fever case will infect a second stegomyia. A certain number of mosquitoes are necessary for the propagation of yellow fever, but this number is ordinarily largely exceeded in yellow-fever countries. While it is probably impossible under any sanitary organization to exterminate the stegomyiæ altogether, it is possible to reduce them below the yellow-fever point, but so long as the number remains above this point we shall continue to have yellow fever when non-immunes are present, no matter how much we fumigate or how carefully we isolate the sick. Gorgas regards this as a reasonable explanation of the disappearance of yellow fever, before we knew of its propagation by mosquitoes, from Philadelphia, New York, Boston and Quebec, cities in which the stegomyia is not normally found, but used to be carried there on the sailing vessels.

6. **Influenza.**—Stiles reports a hundred tabulated cases of suspected influenza, in which examination of the sputum was undertaken with a view to determining the trustworthiness of a method of diagnosis based on the morphologic characters alone of the organism found in the sputum. Several slides were made from each specimen, and, after drying in air and gently fixing by heat, were stained with alkaline methylene blue and dilute solution of carbolfuchsin (about one part to eight or ten of water). He describes the characters of the *Bacterium influenza*, and concludes as follows: 1. In view of the results obtained from this series of cases, I can not too strongly emphasize the necessity of making a routine microscopic examination of sputum from cases manifesting general respiratory symptoms of disease. No matter what the previous diagnosis may have been from the symptomatology alone, further light on the condition of the patient may be obtained from a microscopic study of the sputum. 2. Valuable information may be obtained from a brief study of well-stained specimens of sputum from suspected or complicated cases of influenza. 3. A few cases resembling tuberculosis may be due to infection of influenza bacilli alone or to a mixed infection of the two organisms.

New York Medical Journal.

June 27.

10 *Theoretical Considerations and Experimental Work Relative to Opsonins, with Observations at the Saranac Laboratory. E. R. Baldwin, Saranac Lake, N. Y.
11 *Opsonic Treatment of Disease. G. M. Illman, Philadelphia, and H. A. Duncan, Philadelphia.
12 *Tuberculin Inunction. E. Moro, Munich, Germany.
13 Ocular Tuberculin Test. A. L. Benedict, Buffalo, N. Y.
14 Ocular Tuberculin Reaction in Diagnosis of Tuberculous Conditions. H. H. Pelton, New York.
15 *Mercury and Tuberculosis. W. F. Bernart, Chicago.
16 Porto Rico as a Field for Research in Tropical Medicine. B. K. Ashford, Washington, D. C.
17 Acute Syphilitic Nephritis. J. Ballagi, Homestead, Pa.
18 Results Obtained from Use of Diphtheria Antitoxin Refined and Concentrated by Gibson's Method. R. E. Wodehouse, New York.

10. Abstracted in THE JOURNAL, May 30, 1908, p. 1818.

11. **Opsonic Therapy.**—Illman and Duncan summarize their results with opsonic treatment in 30 cases, of which 13 were tuberculous, 5 gonorrheal, 6 staphylococcic, 3 streptococcic, 1 mixed, 1 colon, and 1 typhoid. Their conclusions are practically as follows: Vaccine therapy offers a chance of cure in many cases of disease heretofore regarded as incurable. In the large majority of cases stock vaccines are just as efficient as autogenous vaccines. Patients can be treated with fewer actual index observations than was at first supposed. Patients treated with clinical phenomena alone as a guide should only be so treated by some one well versed in vaccine therapy, and then only after having been under previous observation for a period long enough to have determined "the phase" the patient is in. Very small initial doses should be employed when the opsonic index has not been previously determined. The best results at the present time are obtained in tuberculous conditions and staphylococcic or streptococcic infections, as in acne. To get the best results vaccine treatment must be instituted as soon as the diagnosis is made. They report the thirty cases in detail.

12. **Tuberculin Inunction.**—Moro recommends as a substitute in many cases for the ocular and subcutaneous tuberculin reactions the following method: Koch's old tuberculin, 5 c.c.; anhydrous wool fat, 5 gms. A piece the size of a pea is rubbed into the skin of the chest or abdomen for about half a minute over an area of four square inches. On the following day, or later, the appearance of small papules which last for about a week indicates a positive reaction. Moro asserts that a positive result by this method is as conclusive as those of Calmett's or v. Pirquet's methods. The method is said to be entirely harmless.

15. **Mercury in Tuberculosis.**—Bernart, as the result of observation in the treatment of 422 syphilitics, of whom many were tuberculous, by intravenous injections of mercury, arrives at the following conclusions:

1. The control of the active syphilis in many of the tuberculous patients seemed for the time to benefit the tuberculosis also.
2. In patients with pulmonary tuberculosis, after the first control of the syphilis and if the treatment was continuously pushed, a few months would show a gradual aggravation of the tuberculosis.
3. The genitourinary tuberculous patients, outside of the benefit to their syphilis, showed no improvement in their tuberculosis.
4. Two patients with tuberculous eye trouble were benefited, one markedly so and the other but moderately so. This is not surprising, as the intravenous injections of mercuric chlorid exert a decided and beneficial influence over infections and ulcerations of the eye.
5. The patients with pulmonary tuberculosis, evidently suffering from the absorption of septic materials, probably due to a second

ary germ infection, were decidedly benefited up to a certain point, after which, if the mercurial treatment was continued, their retrogression was rapid.

Medical Fortnightly, St. Louis.

June 10.

19 *A Plea for Prompt Use of Retrograde Catheterization in Surgical Treatment of Impassible Stricture of the Urethra. E. Jonas, St. Louis.
20 Visiting Far Cathay. R. G. Eccles, Brooklyn, N. Y.

June 25.

21 Ectopic Gestation. E. Walker, Evansville, Ind.
22 Why Do Young Men Crowd into the Professions? A. L. Benedict, Buffalo, N. Y.
23 Glimpses of Early St. Louis Medical History. W. B. Outten, St. Louis.

19. **Retrograde Catheterization in Stricture.**—Jonas considers that there has been an unjustifiable lack of progress in treating benign urethral strictures, which he attributes in part to the want of surgical training in the older genitourinary physicians and to the public dread of operations on the penis. Treatment of strictures with sounds should be reserved for strictures of moderate size, frequently called of large caliber. For strictures of small caliber, and those admitting only a filiform bougie, urethrotomy is better, preferably external urethrotomy (except in strictures of the pendulous urethra, when internal urethrotomy may be chosen). Jonas favors urethrotomy in all cases in which the urethra can not easily be kept open by bougies, or in patients with pain or annoying symptoms, even when it is possible to pass a sound of normal size. All scar tissue should be completely excised. When in external urethrotomy it is impossible to pass a filiform bougie, an attempt may first be made to find the proximal opening of the urethra from the perineal incision, but failing speedy success, the bladder should be opened above the pubis and a sound should be passed through the bladder to the perineum (retrograde catheterization). The sound point acts as a guide to slit open the urethra. The wound of the bladder and the abdominal incision are closed at once, the prevesical tissue being safeguarded by a small cigarette or tubular drain.

Surgery, Gynecology and Obstetrics, Chicago.

May.

24 Hemorrhage from the Stomach and Duodenum. W. J. Mayo, Rochester, Minn.
25 False Diverticula of the Appendix. H. Upcott, Hull, Eng.
26 Case of Primary Ovarian Pregnancy. C. C. Norris and C. B. Mitchell, Philadelphia.
27 *Surgical Treatment of Cancer of Sigmoid and Rectum. B. G. A. Moynihan, Leeds, Eng.
28 Intermittent Hydrops of Joints. W. Healy, Chicago.
29 *Syncytioma or Chorioepithelioma of the Placenta. E. P. Davis, Philadelphia.
30 Dawn of Modern Military Surgery. N. Senn, Chicago.
31 *Ureteral Calculi. J. H. Gibbon, Philadelphia.
32 *Cesarean Section. E. Reynolds, Boston.
33 Prolapse of the Female Urethra. G. F. B. Simpson, Edinburgh, Scotland.
34 *Conditions That Require Removal of the Child from the Breast. C. B. Reed, Chicago.
35 Successful Treatment of Chronic Gonorrheal Endometritis. G. Kolischer, Chicago.
36 Simplified Technic for Supravaginal Hysterectomy. W. Bartlett, St. Louis.
37 *Improved Hodgen Splint for Fractures of the Thigh. G. S. Brown, Birmingham, Ala.
38 Simple Hysterectomy in Simple Cases. A. H. Ferguson, Chicago.

27. **Cancer of Sigmoid.**—Moynihan endeavors to show that the descending colon and the upper part of the sigmoid flexure retain their vitality after the sacrifice of the inferior mesenteric artery and that the mobilization of the colon and the splenic flexure permits considerable displacement of these portions of the bowel, and argues that in all cases of carcinoma of the sigmoid or of the rectum, whether high or low (the proctodeum excepted), an abdominal operation seems advisable, for by this route only can the whole lymphatic territory be extirpated. He describes the procedure necessary in a case of growth about the middle of the sigmoid.

29. **Chorioepithelioma of Placenta.**—Davis reports a case and discusses the literature of the subject. He urges the importance of examining the placenta in all cases in which pregnancy is interrupted after the fourth month. Ballantyne's statement that the placenta is the key to fetal pathology should be kept in mind in all cases in which the fetus is stillborn or the pregnancy is interrupted after the placenta is formed. If chorioepithelioma is found, attention must be directed to the mother. All cases of pregnancy complicated by anomalous hemorrhage should arouse the suspicion of chorioepithelioma malignum. He asks: "Shall the operator who detects chorioepithelioma of the placenta proceed immediately to hysterectomy as soon as the patient's condition justifies it, or shall he content himself with a thorough examination of the patient under ether, including curetting, and the microscopic examination of the scrapings? If these procedures give no evidence of chorioepithelioma, is he justified in allowing the patient to pass from his observation without hysterectomy?"

31. **Ureteral Calculi.**—Gibbon reports six cases, and discusses the pathology, symptoms, diagnosis and treatment, considering the operative treatment as it is applicable to stones situated in the upper third, the lower two-thirds, and the vesical portion of the ureter respectively. He discusses various routes and operations, and urges the advantage in doubtful and difficult cases of the combined intraperitoneal and extraperitoneal operation.

32. Abstracted in THE JOURNAL, March 14, 1908, p. 911.

34. **Removal of Child from Breast.**—Reed reviews observations of the effect on the child of drugs administered to the mother. It seems probable that alcohol, opium, chloroform, ether, thyroid extract and lead should be used with extreme care in a nursing woman until their status is determined; that zinc apparently has no effect, while all the other drugs investigated, atropin, arsenic, antipyrin, acetic acid, bismuth, potassium bromid, balsam of copaiba, castor oil, copper, chloral, iodin and its compounds, mercury, phenacetin, quinin, salicylic acid and senna—pass over in small quantities in the milk, but rarely to a degree injurious to a sensitive babe. The child, therefore, need practically never be removed from the breast on account of their administration. Nephritis, serious and obstinate erosion and fissure of the nipple, Paget's disease, scirrhus, sarcoma or abscess of the breast, together with local or systemic tuberculosis, syphilis, erysipelas, acute articular rheumatism, acute pulmonary or pleuritic affections, and all infections and contagious diseases, osteomalacia, and all puerperal infections that are not mild and transitory in character demand the absolute separation of mother and child.

37. Abstracted in THE JOURNAL, Jan. 25, 1908, p. 310.

American Journal of Medical Sciences, Philadelphia.

May.

39 *Analysis of One Hundred and Forty Operations on the Kidneys and Ureters. G. E. Brewer, New York.
40 *Epidemiology of Acute Poliomyelitis. L. E. Holt and F. H. Bartlett, New York.
41 *Suppurative Phlegmonous Gastritis. J. W. Bovee, Washington, D. C.
42 *Gallop Rhythm of the Heart. G. C. Robinson, Philadelphia.
43 Toxemia from Standpoint of Perverted Metabolism. R. W. Webster, Chicago.
44 *Relaxed Knee Joint. A. H. Freiberg, Cincinnati.
45 Primary Colloid Carcinoma of the Appendix. E. H. White, Montreal.
46 *Management of Labor in Minor Degrees of Pelvic Contraction with Reference to the Relative Indications for Abdominal Cesarean Section. H. D. Fry, Washington, D. C.
47 *Clinical and Pathologic Aspect of Rodent Ulcer. G. McConnell, St. Louis.
48 Erysipeloid of Rosenbach. J. H. Jopson, Philadelphia.
49 Symptom-Complex of Transverse Lesion of the Spinal Cord and Its Relation to Structural Changes Therein. A. R. Allen, Philadelphia.

39. Abstracted in THE JOURNAL, Feb. 29, 1908, p. 719.

40. **Acute Poliomyelitis.**—Holt and Bartlett present as complete a collection as possible of the epidemics of this disease so far reported, 35 in all, excluding the New York (1907) epidemic, which is to be made the subject of a special report by the medical societies. They discuss the data on communicability, and conclude that this is unquestionably an infectious disease, but whether it is communicable is open to question. They believe that it is communicable, but only to a slight degree. They give a tabulation of the principal facts regarding the thirty-five epidemics, together with references to the literature.

41. Abstracted in THE JOURNAL, Jan. 25, 1908, p. 311.

42. **Gallop Rhythm.**—Robinson summarizes his paper as follows: Gallop rhythm of the heart is a fairly frequent clinical phenomenon, which consists in the presence of a group of three cardiac tones, none of which are murmurs. It occurs under variable clinical conditions. That form of gallop rhythm which is best heard at the apex, or over the central part of the precordium, may be divided into the presystolic, protodiastolic and mesodiastolic types, depending on whether the extra tone falls at the end, at the beginning, or in the middle of each diastole. Each form is associated with a characteristic cardiogram. There are a number of factors which probably combine in various ways to produce the various forms of gallop rhythm. Presystolic gallop rhythm is heard in two classes of cases. It is heard in strongly acting hearts in which a muscle sound produced by a strongly acting, hypertrophied auricle is probably the cause of the extra tone; and in weak, rapidly acting hearts at the height of acute febrile diseases, at which time there is possibly a delay in the conduction of the heart beat from the auricles to the ventricles. Under these circumstances the sound produced during the contraction of the auricles becomes distinguishable from that produced during the contraction of the ventricles. In both classes of cases the extra tone seems to be produced in the auricle rather than in the ventricle. Protodiastolic and mesodiastolic gallop rhythm are caused by the production of an extra tone in the ventricles. The factors that probably combine to produce this extra tone are an increase in the amount and velocity of the flow of blood from the auricles into the empty ventricles and a loss of tone of the heart muscles of the ventricles. The longer silent period in cases of gallop rhythm does not usually occur during diastole, but is generally a systolic silence.

44. Abstracted in THE JOURNAL, Jan. 18, 1908, p. 233.

46. **Pelvic Contraction.**—Fry emphasizes the importance of early surgical intervention before the woman has gone through the exhaustion of prolonged labor pains, and particularly before employing forceps and manipulations that may produce infection. It is incumbent on the general practitioner to learn to recognize early the cases of disproportion between the infant's head and the maternal pelvis. Pelvic deformity is much more frequent than is generally supposed. He describes the varieties of deformity and says that pelvimetry should be performed at the eighth month of pregnancy in all primiparæ, and in those multiparæ who have passed through difficult labors. He discusses in detail the three lines of treatment open in minor degrees of pelvic contraction discovered in the thirty-second week: (1) The induction of premature labor; (2) elective Cesarean section; (3) delay until labor has demonstrated the resources of Nature: then (a) spontaneous delivery; (b) version; (c) axis-traction forceps; (d) Cesarean section; (e) symphyseotomy or pubiotomy; (f) craniotomy.

47. **Rodent Ulcer.**—McConnell discusses the literature of rodent ulcer and analyzes 16 cases from the St. Louis Skin and Cancer Hospital. Both gross and microscopic appearances were practically alike in all cases. Contrary to Bland-Sutton's statement that rodent ulcer never cicatrizes, in one of these cases it had done so to a remarkable extent. McConnell describes the histologic findings minutely and emphasizes the characteristic formation of the cell nests, the marked fragmentation of elastic tissue, and the fact that in one case, which came to autopsy, no infiltrated nodes were found nor were there any metastases to distant structures; from which he argues the probability of permanent cure by early excision. A number of patients were treated by *x*-rays for varying periods without permanent benefit. The lesion and symptoms would seem to improve, the patient would stop coming, and would return later when the lesion had broken down. Excision followed by *x*-ray treatment gave the best results.

Bulletin of the Johns Hopkins Hospital.

May.

50 John Syng Dorsey: The Secret of His Success. A. Robin, Washington, Del.
51 Intestinal Anastomosis Without Open Incisions by Means of Basting Stitches. E. M. Parker and H. H. Kerr, Washington, D. C.
52 A Clinical Study of the Alkalinity of the Blood. S. Strouse, Baltimore.
53 *Cardiohepatic Angle. W. J. Calvert, Columbia, Mo.

53. **The Cardiohepatic Angle.**—Calvert says that clinically the value of the cardiohepatic angle in pericarditis is not decreased in the early stages of the development of dilatation of the left auricle, because the signs of the mitral lesion would be present. In enlarged hearts the lesion must be determined before an increased cardiohepatic angle is differential for an associated pericardial effusion. In extreme dilatation of the heart, when differentiation from pericarditis is the most difficult, the cardiohepatic angle is of little value, unless the history of the case is known; even then it is, at best, uncertain. When pericardial effusion can be positively excluded, an increase in the cardiohepatic angle becomes a sign of mitral stenosis, because this lesion most frequently causes extensive dilatation of the left auricle and displacement of the root of the lung. When the history of the case is known, allowing heart lesions to be excluded, an increase in the cardiohepatic angle retains the value in pericarditis with effusion given to it by Ebstein and others.

California State Journal of Medicine, San Francisco.

May.

54 The Weber Murder; Was Adolph Weber Insane? R. F. Rooney, Auburn.
55 *Fallaciousness of So-called Pathognomonic Signs in Diagnostic Work. C. M. Cooper, San Francisco.
56 Reaction of Anaphylaxis. L. S. Mace, San Francisco.
57 Development of the County Medical Society. W. T. Barry, Santa Barbara.
58 A Nerve Sedative. C. Renz, San Francisco.

55. **Fallaciousness of Diagnostic Signs.**—Cooper considers that the McBurney point has been given a pathognomonic significance which it does not merit, and has caused many innocent appendices to be operated on. The continuous presence of occult blood in the stools can not be relied on to indicate alimentary carcinoma. Chronic apical catarrh may indicate influenza and not tuberculosis. Acid-fast bacilli may be found in non-tuberculous ailments. Lung tissue in the sputum does not necessarily indicate an intrapulmonic purulent collection. A diastolic puff over the aortic and pulmonary valves is sometimes due to mechanical diastolic movement of air in the neighboring lung tissue. Both leucocytosis and fever may be absent in malignant endocarditis. Cooper doubts the diagnostic value of pulsus alternans as to loss of contractibility of cardiac muscle, etc. He suggests that: 1. The time has come to state and to teach that there are no pathognomonic signs of the individual diseases, that the presence of such signs forms only one link in the diagnostic chain, and in no way excuses neglect of thorough and, if necessary, repeated investigations of our patients. 2. The use of pathognomonic terms such as gallstones crepitus and ureteral clots would better be discarded.

Northwestern Lancet, Minneapolis.

May 1.

59 *Diagnosis and Treatment of Extrauterine Pregnancy. G. C. Barton, Minneapolis.
60 Tact in the Practice of Medicine. A. D. Hard, Marshall, Minn.
61 Cardiospasm; Functional Stenosis of the Esophagus at the Cardia. O. R. Bryant, Minneapolis.

May 15.

62 Methods of Diagnosis in Some of the Clinics of Germany. L. A. Nippert, Minneapolis.
63 Diagnosis and Treatment of Pneumonias in Childhood. J. T. Christison, St. Paul.
64 Southern Travels. C. J. Ringnell, Minneapolis.
65 Optic Neuritis Due to Chronic Empyema of the Frontal and Anterior Ethmoidal Sinuses. W. R. Murray, Minneapolis.

59. **Extrauterine Pregnancy.**—Barton describes a peculiar case in which, besides the left ruptured tubal pregnancy for which operation was done, there was a distention of the right tube with serous fluid and blood, which did not have the characteristics of a hydrosalpinx. He suggests the possibility of there having been a pregnancy in both tubes. He discusses the diagnosis of extrauterine pregnancy and regards irregularity in the menstrual flow as the most constant symptom. He agrees with those who think that with proper judg-

ment more lives would be saved if we were to wait a few hours until shock is over before operating. He believes that the shock is not entirely due to the hemorrhage, but that the sudden pain and the fear of dissolution are factors in it also.

Journal of the Missouri State Medical Association, St. Louis.

May.

66 Status of the Medical Profession. R. H. Goodier, Hannibal.
67 *The Roentgen Ray in the Diagnosis of Renal and Ureteral Calculi. R. D. Carman, St. Louis.
68 Relation of Salts to the Heart Beat. W. W. Duke, Kansas City.
69 *Effect of Surgical Operations on Diabetic Patients. L. T. Riesmeyer, St. Louis.
70 Peritoneal Tuberculosis. J. D. Seba, Bland.

67. This article was published in the *Interstate Medical Journal*, May, 1908.

69. **Surgical Operations on Diabetics.**—Riesmeyer points out that even in cases in which the general constitution of the patient seems to guarantee a good result coma and death have followed operation, while in relatively far-advanced cases good results of operative intervention and improvement in diabetic symptoms have followed. It is wise to prefer palliative measures in small ailments, such as ingrown toenail, and even corns. That a good result will ensue can not be foretold with exactness, so that prognosis must be cautious. General anesthesia, especially chloroform, increases the danger of coma. On the whole, the prognostic significance of operation on diabetic patients may be somewhat modified by sustaining the nutrition, the strength and the resisting power of the body by preventing or counteracting acidemia, and by reducing infection and the duration of operative procedures to a minimum.

Journal of the South Carolina Medical Association, Greenville.

May.

71 The Great Black Plague. L. Guerry, Columbia.
72 *Treatment of Fractured Patella. T. Maddox, Union.

72. **Fractured Patella.**—Maddox had to operate in a case in which only catgut was available for suture of the patella. The patient did well and is now, years afterwards, in excellent condition. Maddox considers that there is no need, if bony union is effected in from 10 to 20 days, for leaving sutures longer, and he believes strong catgut the best material.

Illinois Medical Journal, Springfield.

May.

73 What the Illinois State Board of Charities Is Accomplishing. W. G. Graves, Springfield.
74 Medical Administration of State Charitable Institutions. F. P. Norbury, Jacksonville.
75 What the Civil Service Commission Is Accomplishing. W. B. Moulton, Chicago.
76 Early Diagnosis of Pulmonary Tuberculosis. E. H. Butterfield, Chicago.
77 *Arteriosclerosis of the Nervous System. H. T. Patrick, Chicago.
78 *Vaccine Treatment of Gonorrhea in Female Children. W. J. Butler and J. P. Long, Chicago.
79 Inflammatory Conditions Within the Abdomen and Thorax Differentiated from Appendicitis. C. J. Whalen, Chicago.

77. Abstracted in THE JOURNAL, March 28, 1908, p. 1069.

78. This article was published in THE JOURNAL, March 7, 1908, p. 744.

Military Surgeon, Carlisle.

May.

80 *An Operation for Varicocele. G. F. Freeman, U. S. Navy.
81 Simple and Double Continued Fevers of the Philippines. H. J. Nichols, U. S. Navy.
82 Epidemic of Typhoid Fever at Iloilo. E. H. Bruns, U. S. Army.
83 Epidemic Typhoid with Special Reference to Contact Infection. L. A. LaGarde, U. S. Army.
84 A Small Typhoid Epidemic. L. C. Duncan, U. S. Army.
85 A Honolulu School of Tropical Medicine; Life History of an Idea. E. S. Goodhue, Kealapekua, Hawaii.
86 Practical Portable X-Ray Equipment for Army Field Service. J. A. Metzger, U. S. Volunteers.

80. **Operation for Varicocele.**—Freeman describes an operation for which he claims the advantages that no material is left for absorption; shortening of the scrotum by transverse suturing of the external wound at the time of the shortening of the structures within; simplicity; removable sutures for tying the varicose mass that would at the same time safeguard against hemorrhage. The article is illustrated.

Pennsylvania Medical Journal, Athens.

May.

87 Oration in Dermatology. H. W. Stelwagon, Philadelphia.
88 *Treatment of Acute Infections of the Female Pelvic Organs. F. H. Maier, Philadelphia.
89 *Treatment of Pelvic Abscess. F. C. Hammond, Philadelphia.
90 *Ovarian Tumors Complicating Pregnancy and the Puerperium. W. Krusen, Philadelphia.
91 *Treatment of Eclampsia. J. C. Applegate, Philadelphia.
92 *Treatment of Terminated Ectopic Pregnancy. C. A. Stillwagon, Pittsburg.
93 *Treatment of Dysmenorrhea by Forcible Dilatation of the Cervical Canal and Application of the Wylie Drain. H. D. Fevea, Philadelphia.
94 *Sliding Hernia. J. D. Singley, Pittsburg.
95 Old Friends in New Clothes. S. J. McGhee, Mill Hall.
96 Why Pennsylvania Should Build, Equip and Maintain a Hospital for the Restraint, Care and Treatment of Inebriates, and What the Hospital Should Be. J. B. Carroll, Hatboro.

88 to 91. Abstracted in THE JOURNAL, Nov. 16, 1907, p. 1706.

92. Abstracted in THE JOURNAL, Nov. 9, 1907, p. 1624.

93. Abstracted in THE JOURNAL, Nov. 16, 1907, p. 1706.

94. **Sliding Hernia.**—Singley directs attention to this inadequately considered condition and describes the method of dealing with it. He emphasizes the importance of seeing clearly all sides of the external surface of the neck of the sac in inguinal hernia, and of ligating it in full view, low down, if necessary. If ligated low down it may be dislocated, if desired, according to one of the several methods in vogue.

West Virginia Medical Journal, Wheeling.

May.

97 President's Address Before West Virginia State Medical Association (concluded). F. Howell, Clarksburg.
98 Clinical Aspects of Appendicitis. W. W. Golden, Elkins.
99 West Virginia Institutions. L. V. Guthrie, Huntington.
100 The Social Evil: What Shall We Do with It? J. C. Irons, Elkins.
101 Maternal Impressions. T. M. Hood, Clarksburg.
102 Case of Fracture of Larynx. C. M. Hawes, Huntington.
103 The Fraternal Spirit. R. J. Reed, Wheeling.

Journal of the Medical Society of New Jersey, Orange.

May.

104 *Value of Some Modern Laboratory Methods for the Practitioner. F. C. Wood, New York.
105 Trichiasis. T. R. Paganelli, Hoboken.
106 Relation of Physician and Pharmacist to the United States Pharmacopeia and National Formulary. W. C. Anderson, Brooklyn, N. Y.
107 Doctor and Druggist. C. J. McCloskey, Jersey City.

104. **Laboratory Methods.**—Wood deals with blood examinations in their relation to the malarial parasite, leucocytosis, *Filaria nocturna*, the *Spirochæta pallida*, agglutination tests, the opsonic index, etc., and also the examination of the stools in cases of severe anemia, for the eggs of bothriocephalus. The irrigation method, washing out the lower intestine once or twice daily with high irrigation of physiologic salt solution in pernicious anemia is recommended. He cautions against paying too great attention to the leucocyte count to the exclusion of physical examination, and discusses the differentiation of pneumonia and typhoid by blood examination. Leucocytosis is also an aid in prognosis, *e. g.*, in appendicitis. The Widal test has proved one of the most useful of laboratory diagnostic methods. Wright's vaccine treatment, owing to the complexity of its methods, will probably be left to special laboratories. The topical tuberculin test for tuberculosis—by the skin and the eye—is discussed, and the author considers that the latter would prove valuable if a purified and standardized tuberculin could be obtained. The article, being didactic, hardly lends itself to abstraction.

Therapeutic Gazette, Detroit.

May.

109 *Analysis of Psychotherapeutic Methods. F. X. Dercum, Philadelphia.
110 Treatment of Enlargement of the Prostate. W. Karo, Berlin.
111 Medicinal Treatment of Pulmonary Tuberculosis. G. L. Haefele, Cleveland.
112 Bier's Method in Treatment of Some Neuroses. A. Gordon, Philadelphia.

109. **Psychotherapy.**—Dercum says that we should always bear in mind that symptoms have a physical basis, and this is

especially true of functional nervous disease. Exhaustion plays a fundamental rôle in all cases, and when the general level of the mental tone is raised obsessions disappear (Janet), so that the bringing up of the general health to the highest possible level is the first thing. To this end simple physiological procedures, rest, full feeding, gentle exercise, massage, bathing, etc., should be instituted in every case. In obsessional states there is essentially a neurasthenia or "psychasthenia." In addition to rest and physiologic measures, mental rest by isolation, retraining of the patient, and later special mental exercises or gymnastics are advised. Judicious normal suggestion should be used, including such explanation of the patient's condition as may be adequate and tactful, pointing out that the symptoms are functional and will disappear. Suggestion under hypnotism he regards as rarely, if ever, justified. Psychoanalysis will probably not find a permanent place in therapeutics.

Ohio State Medical Journal, Columbus.

113 Acute Yellow Atrophy of the Liver. D. B. Conklin, Dayton.
114 Diagnosis of Surgical Diseases of the Kidneys. G. M. Todd, Toledo.
115 Spinal Curvature Arising from the Improper Seating of School Children, and Its Prevention. W. G. Stern, Cleveland.
116 Mechanical Treatment of Habitual Constipation. W. Teachnor, Columbus.
117 Statistical Consideration of Six Hundred General Anesthesias. R. Carothers, Cincinnati.
118 *What the Profession May Do in Matters of State. J. M. Howell, Dayton.

118. Abstracted in THE JOURNAL, Sept. 28, 1907, p. 1140.

Washington Medical Annals.

May.

119 *Acid Intoxication. J. B. Nichols, Washington.
120 Differential Diagnosis of the Chronic Non-tuberculous Joint Affections. J. Dunlop, Washington.
121 Clinical Studies in Organotherapy. I. H. Lamb, Washington.
122 Perkins' Metallic Tractors. D. S. Lamb, Washington.
123 Easy Methods of Carrying Out the Principles of Aseptic Surgery. R. Reyburn, Washington.

119. **Acid Intoxication.**—Nichols discusses the physiologic chemistry of this condition and summarizes the four principal hypotheses as to the agents actually producing the toxic phenomena: (1) That the acetone bodies are themselves the toxic agents—which view he considers entirely inadequate; (2) that beta-oxybutyric and diabetic acids exert their deleterious action by virtue of their acidity; (3) that the harmful effects are due to the withdrawal of diminution of the bases of the body; (4) that the real toxic agents are some unknown precursors or associates of the acetone bodies. The condition, even in marked and serious form, occurs much more frequently than is generally realized, and he suspects that many obscure features that puzzle the clinician as in peculiar forms of indigestion, shock, uremia, etc., are dependent partly on an element of acidosis. The free administration of alkalies, while it produces no results in some cases, should nevertheless be tried in all severe cases. He recommends sodium bicarbonate 15 or more grams (225) grains daily. In addition, calcium carbonate, 3 grams (45 grains) daily, and sodium citrate, 5 grams (75 grains). When alkalies can not be given by the mouth they may be administered by rectum, subcutaneously or even intravenously.

Southern California Practitioner, Los Angeles.

May.

124 *Cases of Benign and Malignant Diseases of the Pancreas. C. E. Zerfing, Los Angeles.
125 *Surgery of the Pancreas. R. P. McReynolds, Los Angeles.
126 Phases of the Physiology of the Pancreas. L. B. Stookey, Los Angeles.
127 *Relation of Gastrointestinal Diseases to the Pancreas. L. G. Visscher, Los Angeles.
128 Mechanism of Shock in Acute Disease of the Pancreas. J. T. Fisher, Los Angeles.
129 Early Surgical Intervention in Pancreatic Diseases. A. S. Lobinger, Los Angeles.
130 Relation Between Cholelithiasis and Surgery of the Pancreas. W. A. Edwards, Los Angeles.
131 Public Health Work and the Medical Profession. G. H. Kress, Los Angeles.

124. **Diseases of the Pancreas.**—Zerfing discusses the anatomy, histology and physiology of the pancreas, and summarizes recent work in pathology. He considers in detail acute hemorrhagic pancreatitis and chronic interstitial pancreatitis.

125. **Surgery of Pancreas.**—McReynolds refers to the most important and special indications for operative interference: 1. Injuries to the pancreas from stab or bullet wounds, or severe contusions in the epigastric region. 2. Inflammations—(a) acute hemorrhagic pancreatitis; (b) subacute pancreatitis; (c) chronic pancreatitis. 3. Pancreatic cysts.

127. **Gastrointestinal Diseases and the Pancreas.**—Visscher discusses the diagnosis of pancreatic insufficiency, and describes the laboratory methods of determining the missing functions of lipolysis, proteolysis, and amylolysis. As to treatment, here, as elsewhere, "pipes and tubes get dirty, stopped up, kinked, or compressed," and "nothing but a plumber will do"—to-wit, surgical help. But when the ducts are open and the gland is not degenerated, but only inactive, potentially active, then we can stimulate pancreatic functions indirectly, by hygienic, mechanical, hydriatic and electric measures. We have in the carbohydrates a physiologic stimulus to pancreatic secretion; but this must not be overdone by trying to make the gland secrete more than it can.

Atlanta Journal-Record of Medicine.

May.

132 Weaning. H. McHatton, Macon, Ga.
133 Early Operation for Adenoids. A. W. Stirling, Atlanta.
134 Cases of Hydrocele and Spermatocele. W. L. Champion, Atlanta.
135 *Treatment of Sprains. T. Toepel, Atlanta.
136 Crushing Injuries of the Extremities. T. H. Hancock, Atlanta.

135. **Sprains.**—After definitely excluding fracture in a recent sprain Toepel recommends: (1) Exposure for one hour to heat to relax tension. (2) Massage by gentle friction, gradually increasing in force, then gentle kneading, long-continued, beginning at a distance from the injury and gradually approaching it. End with palmar percussion. (3) Bandaging tightly with a wet bandage and applying ice bags to keep down inflammation, insisting on perfect rest with the joint elevated for from twelve to twenty-four hours. On the second day the treatment should be repeated, omitting the ice and adding passive circumduction and passive flexion and extension. On the third day resistive movements should be added. Activity should be encouraged between treatments after the second day and the bandage removed permanently on the third or fourth day. A light sprain takes from 7 to 10 days for cure, a hip or shoulder sprain longer, and it is safer not to use the latter for another week.

Journal of Nervous and Mental Diseases, New York.

May.

137 Case of Meningeal Tumor Compressing the Cerebellum. H. Baldwin, New York.
138 Three Cases of Melancholia with Delusions of Negation. H. W. Mitchell and E. E. Southard, Danvers, Mass.
139 Two Cases of Spinal Cord Tumor and Trauma; Report of Two Cases. P. Bailey, New York.

Archives of Ophthalmology, New York.

May.

140 One Hundred Consecutive Cases of Cataract Extraction. J. L. Duncan, Pittsburg, Pa.
141 *Transillumination of the Eye. P. Fridenberg, New York.
142 Influence of Ultra-Violet Light on the Lens. C. Hess, Würzburg, Germany.
143 Camphor Water and Cherry-Laurel Water in Collyria. J. A. Spalding, Portland, Me.

141. **Transillumination of the Eye.**—Fridenberg discusses transillumination of the eye by the Sachs transilluminator and the Würdemann transilluminator; he prefers the latter instrument. For some time he has been making transillumination a routine measure in ophthalmoscopic examination. A better reflex is obtained by applying the illuminating pencil far back near the equator of the globe, pointing it forward toward the anterior segment than under opposite conditions. The observer should look into the pupil in a line with the patient's gaze and not directly from in front as is usually done, unless the patient is looking straight ahead. He describes transillumination of the iris, the influence of the epithelial pigment layer of the iris on transillumination, as also the effect of opacities of the media, and suggests that the

ophthalmoscopic examination of the anterior segment of the fundus gives a much clearer and more brilliant picture if the retina anterior to the ora serrata is made self-luminous by applying the Sachs instrument to the sclera directly over the point to be examined.

Virginia Medical Semi-Monthly, Richmond.

May 22.

144 Gallstones. S. Lile, Lynchburg.
145 Diagnosis and Treatment of Coxalgia. K. Osterhaus, Norfolk.
146 Treatment of Epilepsy. J. A. Hodges, Richmond.
147 Epidemic Influenza Otitis Media; Sequelæ and Treatment. C. R. DuFour, Washington, D. C.
148 Complications and Sequelæ of Influenza. T. A. Parker, Richmond.
149 Conservative Treatment of Toothache. J. O. Hart, Ashland.

Journal of Ophthalmology and Oto-Laryngology, Chicago.

May.

150 Relation of Eyestrain to Epilepsy. M. B. Hodskins and G. A. Moore, Palmer, Mass.
151 Chronic Purulent Otitis Media. E. R. Ogden, Chicago.
152 Headache of Non-suppurative Frontal Sinuitis. F. Brawley, Chicago.
153 Unusual Constitutional Effects of Atropin Solution in the Eye. G. T. von Colditz, Chicago.
154 A New Style Tonsil Forceps. D. S. Hager, Chicago.

Montreal Medical Journal.

May.

155 Mayo's Surgical Clinic. A. L. Smith, Montreal.
156 Primary Carcinoma of the Appendix. A. E. Garrow and C. B. Keenan, Montreal.
157 Gunshot Wound Causing Rupture of Bowel. Without Damage to Peritoneum. J. C. Fyshe, Bangkok, Siam.
158 Spirochœta Pallida; Its Relation to Syphilis. R. P. Campbell, Montreal.
159 Opsonins and Opsonic Index; a Bibliography. A. R. Charlton, Montreal.

Long Island Medical Journal, Brooklyn.

May.

160 Benign Diseases of the Stomach and Duodenum. A. T. Bristow, Brooklyn.
161 Carcinoma of the Stomach. H. B. Delatour, Brooklyn.
162 Results of the Surgical Treatment of the Bile Passages. R. W. Westbrook, Brooklyn.
163 Results of Operations in Pancreatic Disease. W. G. Wood, Brooklyn.
164 Early Exploratory Laparotomy in the Diagnosis of Certain Diseases of the Upper Abdominal Digestive Tract. L. S. Pilcher, Brooklyn.

Journal of the Michigan State Medical Society, Detroit.

May.

165 Obstetric Service for the Laboring Classes and the Relation of the Midwife to It in Michigan. C. M. Davis, Lansing.
166 What the Public Should Know Concerning Venereal Disease. L. J. Hirschman, Detroit.
167 A Complete, Practical and Brief Examination of the Alimentary Tract. W. H. Enders, Jackson.
168 Abdominal Pain; Its Diagnostic Significance. H. W. Yates, Detroit.
169 Chronic Interstitial Nephritis and Its Relation to Recurring Paralysis. B. A. Shepard, Plainwell.
170 Rheumatism in Children. W. G. Hutchinson, Detroit.

Detroit Medical Journal.

May.

171 Chronic Ulcer of the Stomach and Duodenum. W. J. Mayo, Rochester, Minn.
172 Diagnosis and Treatment of General Peritonitis. M. Ballin, Detroit.
173 Inoperable Gastric Ulcer; Syphilitic Jaundice; Syphilitic Dyspnea. W. M. Donald, Detroit.

American Practitioner and News, Louisville.

June.

174 Neurasthenia and Its Relation to the Drug and Liquor Addictions. F. F. Young, Abbeville, La.
175 Mental and Nervous Diseases in General Practice. J. A. Flexner, Louisville.
176 Effect of Alcohol on Protoplasm. E. S. Allen, Louisville.

Ophthalmic Record.

May.

177 Method of Illuminating Test-Type Charts with Artificial Light. N. M. Black, Milwaukee, Wis.
178 Case of Right Homonymous Hemianopsia in the Macular Regions. W. C. Posey, Philadelphia.
179 Probable Tumor of the Pituitary Body with Optic Atrophy Following Premature Menopause. E. R. Wylie, Boston.
180 A Wire Lid-Elevator for Prevention of Loss of Vitreous Humor in Extraction of Cataract. E. Moraweck, Louisville, Ky.

Texas State Journal of Medicine, Fort Worth.

May.

181 Relation of the Tonsil to Systemic Infection. J. M. Woodson, Temple.
182 Toxemia of Pregnancy. R. J. Alexander, Waco.
183 Case of Severe Vertigo and Ataxia Complicating Chronic Suppurative Otitis Media; Operation; Recovery. J. H. Foster, Houston.
184 Can We Always Know When to Operate for Mastoiditis? E. H. Carv, Dallas.
185 Retrodisplacement of the Uterus. A. Herff, San Antonio. Id., R. R. White, Temple.
186 Acute Mastoiditis, Non-operative, Operative and Postoperative Treatment. W. D. Jones, Dallas.
187 Opsonins and Vaccine Therapy. K. H. Beall, Fort Worth.
188 Cesarean Section. W. Cantrell, Greenville.

St. Louis Medical Review.

May.

189 Medical Ethics—Duties of Physicians. H. C. Fairbrother, St. Louis.
190 Some Devices for Increasing the Usefulness of Blood Counting Apparatus. W. P. Elmer, St. Louis.
191 Ulerythema Sycosiforme. C. H. Ball, St. Louis.
192 Surgery of the Ureter. B. M. Ricketts.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London.

June 13.

1 Melitensis Septicemia. J. W. H. Eyre.
2 Dangers and Treatment of Myoma of the Uterus. C. Martin.
3 *Bacteriology of Cerebrospinal Meningitis. W. J. Wilson.
4 *Intractable Hay Fever and Paroxysmal Coryza by Resection of Nasal Nerve. E. S. Yonge.
5 The Gastroscope. A. E. Morison.
6 Case in Which Occlusion of Abdominal Aorta Took Place. C. H. Cattle.
7 *Treatment of Gangrene in Strangulated Hernia. E. M. Corner.
8 Case of Dissecting Aneurism of Pulmonary Artery; Patent Ductus Arteriosus; Rupture into Pericardium. L. Durno and W. L. Brown.

3. **Bacteriology of Cerebrospinal Meningitis.**—Wilson describes a Gram negative diplococcus found in the feces of cerebrospinal fever patients. It superficially resembles the meningococcus, though quite distinct from it, and is shown by the following facts to have nothing to do with meningitis: 1. Typical meningococci were cultivated from the cerebrospinal fluid; and 2, the blood serum of these patients had a high opsonic index as regards the true meningococcus, but a normal index as regards this organism. Wilson describes the morphology, the cultural characteristics and the pathogenicity. He also describes a case of cerebrospinal meningitis due to infection with an organism of the *Micrococcus catarrhalis* class, which he describes in like manner, concluding with a résumé of the history of the *M. catarrhalis*.

4. **Resection of Nasal Nerve for Hay Fever.**—In a preliminary communication Yonge described a method of dealing with desperate cases of hay fever, based on the theory that the stimulant which induces the reflex manifestations observed in hay fever and in paroxysmal coryza is conveyed to the centers of the nasal nerve, which is thus the afferent path of the reflex. He discusses the distribution and functions of this nerve and describes the effect of cauterizing the nasal mucous membrane, and the effect of bilateral resection of the nasal nerve. Division of that nerve on one side abolished the intermittent nasal obstruction, with profuse hypersection on the side on which the nerve had been divided, whereas the disturbances continue to recur periodically in the opposite nasal cavity, as before operation. This led him in an intractable case to perform the following operation: Resection of the nasal nerve on the right side was first performed, chloroform anesthesia being employed. The nerve was reached by an incision at the inner edge of the orbit, commencing just above the inner canthus and extending upward and slightly outward for about two-thirds of an inch. The cellular tissue having been cleared from the inner upper wall of the orbit by means of a blunt dissector and the nerve located at the anterior ethmoidal foramen, the latter was separated from the artery and divided close to the foramen, about a quarter of an inch of the nerve being removed. Horsehair sutures were inserted and the wound was dressed with gauze and collodion. The stitches were removed on the fourth day. Resection of the nerve on the left side was carried out four weeks later. Two months after operation the paroxysmal coryza, sneezing and asthma had entirely disappeared, there was increased freedom of nasal

respiration, and consequently the patient slept better. He had gained seven pounds in weight and the general health was manifestly improved.

7. **Gangrenous Strangulated Hernia.**—Corner reports the results of the treatment of necrosis of the bowel in strangulated hernia at St. Thomas's Hospital, between 1901 and 1905, numbering 30 cases. The methods used have been resection and immediate anastomosis, resection and enterostomy, and invagination. Comparing the urst two methods, he considers that the line of treatment tends toward resection and anastomosis, notwithstanding the unanimity of abdominal surgeons as to the general danger of anastomosis in a bowel distended with septic fluid; but he points out that there is a great difference between cases in which the septic distention has taken place rapidly on an acute condition, as in strangulated hernia, and those in which it follows slowly in a chronic condition, such as carcinoma of the sigmoid. With regard to invagination, the two cases in which it was used proved very successful. It is applicable to small areas of necrotic bowel, and will be mainly useful for secluding "doubtful" bowel, at places where the bowel has been nipped, and for the patchy gangrene sometimes found at the apex of the strangulated loop.

British Medical Journal, London.

June 13.

9 Thoracic Aneurism. D. Drummond.
10 Myalgia. J. R. Keith.
11 *Dangers and Evil Effects of Infant Binders. A. Waring.
12 The Inky Polygraph. J. Mackenzie.
13 Plea for Habitual Performance of Autopsies in General Practice. J. T. Fox.
14 Traumatic Rupture of the Large Intestine; Operation; Recovery. W. H. Battle.
15 Treatment of Fractures. H. T. Gray.

11. **Infant Binders.**—Waring calls attention to the dangers of enveloping the infant's body "in countless bands, swathes and swaddling clothes." The dangers of constriction and increased intra-abdominal and intrathoracic pressure depend on: 1. The degree of constricting or binding force; 2, the extent of surface covered; 3, the time worn; 4, the health and power of resistance of the infant. He enumerates the following effects and conditions that may result from binder comparison: 1, Discomfort; 2, vomiting; 3, inguinal and umbilical hernia; 4, prolapsus ani; 5, thoracic deformities; 6, thoracic constriction in pulmonary diseases; 7, interference with cerebral circulation; 8, a contributory factor to the danger of death by overlying.

Medical Press and Circular, London.

June 10.

16 *Landmarks in the Study of Tuberculosis. W. St. C. Symmers.
17 *New Generalization in Serum Therapy. D. M. Paton.
18 The Milk Problem, or the Production and Distribution of Pure, Clean Milk. J. C. Thresh.
19 *Empyema in Children. S. J. Ross.
20 Surgical Treatment of Chronic Dysentery. H. Steiner.

16. **Tuberculosis.**—Symmers gives a historical account of the progress of our knowledge of tuberculosis. Incidentally, he says that in conjunction with Sir William Whitla he has corroborated the findings of Vansteenberghe and Grysez, that ingested matter can pass from the intestines to the lungs. On introducing ground-up India ink through an esophageal tube, the carbon particles have been found in the lungs of an adult guinea-pig within four hours, the intestines and mesenteric glands offering little or no hindrance. In the case of baby guinea-pigs, however, the mesenteric glands act as a sieve and retain the offending particles.

17. Published in the *Intercolonial Medical Journal of Australasia*, February, 1908, and abstracted in THE JOURNAL, May 2, 1908.

19. **Empyema in Children.**—Ross sums up his remarks as follows: 1. If a child is brought on account of wasting, never omit to examine the chest. 2. If the child is too feeble to stand the operation of resection of ribs, remember that aspiration sometimes results in cure. 3. If we have a child under our care suffering from pneumonia whose convalescence is protracted, we must never forget to keep a watchful eye for the development of fluid. 4. If after drainage the patient's progress is unsatisfactory, we must remember that loculated collections of pus are not infrequent. 5. It is always necessary to examine the pus for the causal organism. If the pneumococcus is found the outlook is favorable. If the streptococcus, the injection of antistreptococcic serum will hasten convalescence. If the tubercle bacillus is discovered the outlook is very unfavorable indeed.

Clinical Journal, London.

June 10.

21 Pathology and Treatment of Headache. A. E. Russell.

Glasgow Medical Journal.

June.

22 *Means of Observing and Recording the Efficiency of Urinary Discharge by the Urethra. A. N. McGregor.
23 Esophagoscopy. R. Fullerton.

22. **The Urinary Flow.**—McGregor details a method invented by one of his patients of gauging the rate of progress and the patency of his urethra during bougie treatment. The first micturition of the morning is most suitable as giving more constant results. The urine is passed into a four-ounce measure graduated in drams, a second being ready for instant substitution if necessary. The urine is allowed to flow into the glass, or glasses, for five seconds from the commencement of the act and then immediately stopped. The amount in drams is read off and noted on cross-section paper, having the numbers 0 to 32 from below upward on the left margin, and the dates along the base line. The dates of dilatation are marked, and the effect on the amount of urine passed in five seconds is thus charted. Experiments with normal patients showed a fairly constant figure, the average quantity passed being taken at 8 ounces. From 32 to 42 drams was found to be the normal amount passed in five seconds. In the case of strictured patients the charts appended to the article show that after dilatation there is a rapid rise in the amount passed in five seconds at the morning micturition; but they show also that overdilatation gives less satisfactory results than more moderate distention, for the gain more quickly subsides than in the latter case.

Dublin Journal of Medical Science.

June.

24 Unusual Pulmonary Cases. T. G. Moorhead.
25 Alcohol and Mental Diseases. W. R. Dawson.
26 *Duodenal Ulcer; Diagnosis and Treatment. A. B. Mitchell.

26. **Duodenal Ulcer.**—Mitchell answers in the affirmative the questions: 1, whether it is necessary and important to be able to diagnosticate duodenal ulcer with accuracy, and, 2, whether such diagnosis can be made with reasonable certainty. The reasons for the first question are the greater seriousness of duodenal than gastric ulcer, the greater liability to profuse and dangerous hemorrhage, the lesser likelihood of permanent cure by medical means in duodenal than in gastric ulcer, and the greater importance of surgical intervention. Duodenal ulcer can be recognized clinically, he says, with as great a degree of accuracy as gastric ulcer, gallstones or even appendicitis. The characteristic symptoms are: 1. Pain of a special type. 2. A feeling of fulness and discomfort after food, with eructations of gas, and generally some hyperacidity. 3. Local tendencies over an area just above and to the right of the umbilicus. 4. Hematemesis and melena. 5. Some degree of dilatation of the stomach exists in most cases from an early stage of the affection. He discusses these signs in detail. As to operation, his own practice is to do a jejunostomy (posterior operation when possible), and then close or partially close the pylorus by a few Lembert sutures. He reports seventeen cases of gastrojejunostomy for duodenal ulcer and nine cases of perforating duodenal ulcer, all terminating in recovery.

Annales de Dermatologie et de Syphiligraphie, Paris.

May, IX, No. 5, pp. 257-349.

27 Congenital Circumscribed Alopecia. W. Dubreuilh and G. Petges.
28 *Treatment of Syphilids with Local Injections of Mercury. H. Hamel.

28. **Treatment of Syphilids by Local Injections of Mercury.**—Hamel advises local medication in ulcerative and destructive syphilids and also when the lesions are localized at an inconvenient point. He advises it also when general treatment is impossible or has proved ineffectual or if there are kidney, intestinal or gum affections. Sixteen cases are described with the technic followed. The best results were obtained with an isotonic solution of mercury cyanid, 1 to 2,000, with a little anesthetic. A very fine needle is inserted, slanting, at one or more points, and enough fluid is injected to cause considerable infiltration. He made from five to ten injections, as a rule, with or without general treatment.

Annales de Médecine et Chirurgie Infantiles, Paris.

May 15, XII, No. 10, pp. 325-360.

29 Study of Respiration in Children. (Pneumographie.) E. Gaujoux.
30 Case of Gangrenous Purpura in Eight Months' Infant. L. Babonneix and L. Tixier.

June 1, No. 11, pp. 361-396.

31 Two Cases of Suppurative Cerebrospinal Meningitis in Infants Simulating Tetany. L. Babonneix and L. Tixier.
32 Bacteriologic Study of Contagious Affection of the Lips. (Perlèche.) M. B. Auche.

Archives Générales de Chirurgie, Paris.

May 25, II, No. 5, pp. 437-539.

33 *Traumatic Diffusion of Urine in Kidney Region. (Pseudohydronéphrose traumatique.) Nové-Josserand and Ballivet.
34 *Postoperative Parotitis. (Considérations cliniques et pathogéniques.) P. Soubeyran and A. Rives.
35 Non-existence of "Adenoma of Testicle." (L'adénome testiculaire existe-t-il et peut-il exister?) A. Branca and A. Bassetta.

33. **Traumatic Diffusion of Urine in Kidney Region.**—Two cases are described of traumatic pseudohydronephrosis, both in children. In 18 cases on record treated by puncture there were 4 deaths in the pre-aseptic era; in 4 cases further operation was required, and the other patients were all cured; the puncture had to be repeated from 2 to 8 times in all but one case. If the perirenal effusion is not very large and the functional disturbances not alarming, expectant treatment is advisable or puncture is repeated as indicated. If the effusion constantly recurs it is better to open the pocket and marsupialize. If the pocket is infected, a plastic operation should not be attempted and nephrectomy must be done. In one of the cases described a large incision with a counteropening in the lumbar region proved insufficient, and the child succumbed to sepsis.

34. **Postoperative Parotitis.**—Soubeyran and Rives relate a case personally observed and 4 others from Mauclaire's experience and summarize 85 from the literature. They ascribe the parotitis to diminished secretion of saliva and enhanced virulence of the germs in the mouth. In some of the cases the parotitis had been preceded by stomatitis.

Bulletin de l'Académie de Médecine, Paris.

June 2, LXXII, No. 22, pp. 581-613.

36 *Preventive Injections of Antitoxic Serum in Prophylaxis of Tetanus. L. Vaillard.
37 *Arteriosclerosis. Its Pathogenesis and Treatment. Lancereaux.
38 Jean-Jacques Rousseau et Desessartz. A. d'Espine.

36. **Preventive Injections of Serum for Tetanus.**—Vaillard discusses 31 cases on record in which tetanus developed after the prophylactic injection. In 10 cases the tetanus developed between the seventeenth and eighteenth and in 8 between the tenth and sixteenth days after the injection. He thinks that the serum ceases to be effectual after a week or at most two weeks, and consequently the above cases are outside the range of the immunity conferred by the serum. A second injection might have prevented the tetanus. In the 13 cases in which the tetanus developed between the second and tenth days, in 6 there had been inadequate dosage; in others the wound was merely dusted with dry serum. There thus remain only 5 cases in which the prophylactic injection proved actually ineffectual—an insignificant proportion in view of the thousands of preventive injections made since 1896 in all countries. The statistics in veterinary practice show good results, he says. In a recent series of 13,124 injections of horses none contracted tetanus. He suggests that possibly one reason for the better results in veterinary practice is that the veterinarian makes the injection himself. Another reason is that in case of disabling accident the horse is killed and the outcome of the serum is known only in the mild cases. The conditions consequently are not the same as in case of serious injury to man. Antitetanus serum is not bactericidal. Spores protected against the phagocytes can proliferate even when the blood is strongly antitoxic. This proves the importance of destroying the spores in the wound and suppressing all conditions favorable to their growth. The serum protects against the action of the toxin, but only for about a week. The first dose should be effectual; the ordinary dose should be doubled or tripled in case of severe traumatism. Phagocytosis is less active in muscle tissue, and the abundance of nerve elements favors the absorption and the passage of the toxin by routes where the antitoxin does not seem to be able to penetrate. When tetanus developed notwithstanding the preventive injection, its course was undoubtedly milder. He advises repeating the injection as needed, his practice being a primary injection of from 20 to 50 c.c.; with 10 or 15 c.c. every week afterward; in one case the tetanus developed nearly thirteen weeks after a single injection. Local application to the wound is effectual only when the serum is not drained away by the dressings.

37. **Arteriosclerosis.**—Lancereaux protests against the assumption that arteriosclerosis is an affection of old age. He has observed it frequently between 30 and 40, and has noticed that its course is more rapid in the comparatively young. The two main factors are gout and lead poisoning. Tobacco, liquor and alimentary toxemia have long been overestimated, he thinks, as factors in arteriosclerosis. They act only in case of a tendency to gout or lead poisoning. The practical result of his views is that members of families which display a tendency to gout should be treated early, seeking to modify that condition of the nervous system which predisposes to arteriosclerosis. He thinks that he has done good work in this line, although its very nature prevents conclusive testimony. He prescribes potassium iodid, from 1 to 3 gm. (15 to 45 grains) in twenty-four hours, continuing this for months and years with intervals of a week each month. He orders at the same time a drastic purgative to promote the elimination of the iodid. Hypertrophy of the heart with high arterial tension and nocturnal polyuria with lesser density of the urine are signs of diffuse arteriosclerosis. Brine baths, alcohol rubs and tepid douches, by soothing the nervous system, favor the elimination of waste. The practitioner should seek to ward off the impending uremia, asystole or cerebral insufficiency, and treat them with the greatest energy if already developed.

Presse Médicale, Paris.

June 3, XVI, No. 45, pp. 353-360.

39 Histology of the Liver Cells. (Cellules hépatiques claires, travées hépatiques normales.) A. Gilbert and J. Jomier.
40 *Symptom of Perforation of Appendix. P. Delbet.
41 Improved Instrument for Tonsillectomy. (Nouveau Morceleur à érigne.) R. Leroux.

June 6, No. 46, pp. 361-368.

42 Interpretation of Urine Findings. (Analyses urinaires.) H. Labbé.
43 *Ethyl Chlorid for General Anesthesia. (Chlorure d'éthyle comme anesthésique général dans la pratique chirurgicale journalière.) F. Lemaitre.

June 10, No. 47, pp. 369-376.

44 *Multiple and Recurring Patches of Gangrene on Arms and Foot. Dieulafoy.

40. **Symptom of Perforation of Appendix.**—Delbet bases the diagnosis of perforation on a single symptom, which he has found constantly in all his cases. After the first onset of symptoms the pain subsides under repose and ice, but suddenly a paroxysm of pain returns. Although it soon subsides again, this abrupt return of the pain, notwithstanding that no imprudence has been committed, is a sign of perforation, and he operates at once.

43. **Ethyl Chlorid for General Anesthesia.**—Lemaitre has been using for two years ethyl chlorid in all operations not

requiring more than two minutes, and as the first stage of chloroform anesthesia. He gives an illustrated description of the simple apparatus, mask and collapsible bag which is used for the purpose. He is convinced that this technic is the most rapid and, with the chloroform, is perhaps less dangerous than any other method for prolonged anesthesia.

44. **Recurring Patches of Gangrene.**—Dieulafoy reports a case in which a man of 30 consulted more than fifteen physicians and surgeons for recurring eschars on the left arm. The affection was diagnosed as neuritis, myelitis, etc., and all kinds of treatment were tried, including stretching the nerve. Finally, he consented to have the arm amputated, but after a few months the patches appeared on the other arm and on the foot. After two and half years of this affection Dieulafoy decided that the man was malingering, and obtained a confession that he had made the sores himself with caustic potash. With the confession the obsession vanished. He had no pecuniary motives for this conduct, and the case raises interesting questions in regard to legal responsibility.

Revue de Médecine, Paris.

May, XXVIII, No. 5, pp. 401-504.

45 Experimental Cholecystitis. J. Thiroloix and R. Debré.
46 *Pernicious Anemia. M. Labbé and M. Salomon. Commenced in No. 4.
47 Initial Lesions in Chronic Hepatitis. E. Gérandel.
48 *Two Cases of Severe Jaundice. Stoicescu and Bacaloglu.
49 Determination in Breast Milk of Substances Indicating Intestinal Putrefaction. (Recherches dans le lait des nourrices.) H. Labbé and R. Pepin.
50 Familial Gallstone Affections. (Lithiase biliaire familiale.) P. Londe.

46. **Pernicious Anemia.**—Labbé and Salomon declare that pernicious anemia is not a morbid entity but a clinical syndrome resulting from extensive destruction of blood with insufficient repair. It is merely, they assert, the last stage of a symptomatic anemia. These conclusions are based on the international literature, and on clinical and experimental research. Six pages of bibliography are appended.

48. **Severe Jaundice from Meat Poisoning.**—In the two cases reported the jaundice came on in the midst of health in young men, except that one in the past had been treated for dyspepsia and mild nephritis and his father for delirium tremens. After eating the spoiled meat, a few days of dyspeptic disturbances and pains were followed by severe illness with delirium, intense jaundice, filiform pulse and terminal coma in the first case. During the coma in the second case there was incontinence of urine and feces, but the kidneys worked so effectually, passing nearly 4,000 grams of urine a day, that the patient gradually recuperated after four days of coma and subcutaneous hemorrhages. The soundness of the kidneys, re-enforced by saline infusion, was evidently his salvation.

Semaine Médicale, Paris.

June 3, XXVIII, No. 23, pp. 265-276.

51 *Characteristics of Venous Pulse in Hypertrophy of Left Heart Associated with "Kidney Heart" and Aortic Insufficiency. (Caractères du pouls veineux dans les hypertrophies du cœur gauche liées au cœur rénal et à l'insuffisance aortique.) L. Bard.

June 10, No. 24, pp. 277-288.

52 Intrapelvic Saccular Dilatation of Uterus at Term. R. de Bovis.

51. **Characteristics of Venous Pulse with Hypertrophy of the Left Heart.**—Bard gives a number of tracings in cases of hypertrophy of the left heart with kidney disease and aortic insufficiency. He shows that the special phases of the venous pulse reveal several important features of this condition. Accentuation of the presystolic wave, after acute nephritis not leaving any traces of albuminuria, is one of the earliest signs of later chronic nephritis. As the characteristics of the venous pulse become modified in the various phases of the kidney affection, they throw light not only on the diagnosis, but also on the prognosis of the cardiac lesions. The lengthening and the—at least apparent—anticipation of the systole of the auricles in nephritis and in aortic insufficiency, reveal the existence of changes in the habitual synchronous action of the auricles and ventricles from the disturbance in the usual course of the blood through the heart.

Berliner klinische Wochenschrift.

June 8, XLV, No. 23, pp. 1081-1120.

53 Intramuscular Myeloma and Hematoma as Complication of Myeloid Leukemia. C. Frugoni.
54 Laryngeal Disturbances in Beriberi. (Kehlkopfstörungen bei Beriberi.) H. E. Kanasugi.
55 Microsporia Epidemic. F. Glaser.
56 Clinical Importance of Turgosphygmographic Pulse Tracings. H. Strauss and F. Fleischer.
57 Intestinal Dyspepsia. (Darmdyspepsie.) M. Einhorn (New York).
58 Experiences at Stettin with Diphtheria. Gabriel.
59 Chronic Diphtheroid Throat Affection. (Chronischer Rachendiphtheroid.) Gabriel.
60 Fracture of Distal Phalanx from Tearing Off of Extension Tendon. F. Davidsohn.
61 *Tuberculin Salve in Differentiation and Treatment of Lupus. E. Senger.
62 Retrogression to Embryonal Conditions in Blood. (Rückschlag in die embryonale Blutbildung.) C. S. Engel.

61. **Tuberculin Salve in Lupus.**—Senger applies a 3 per cent. tuberculin-lanolin salve in local treatment of lupus. There is no general reaction, but the local reaction is like an explosion, he says. The inflammation and suppuration that follow the application of the salve have a curative action, or at least prepare the soil effectually for phototherapy. He has been studying this technic for two years, and extols the manner in which it cures the lupus or influences toward a cure, especially when the inunction of tuberculin salve is supplemented by Roentgen exposures. He regards the reaction as specific, comparing it to the sudden chemical reaction between gunpowder and fire, or that between nitric and carbolic acids. The reaction stops abruptly at the edge of the lupous patch. The reaction also serves to differentiate a tuberculous or lupous lesion from ulceration of other origin.

Deutsches Archiv für klinische Medizin.

March 4, XCII, Nos. 5-6, pp. 383-618.

63 *Influence of Occupation on Size of Heart. (Einfluss der Berufsarbeit auf die Herzgrösse.) Schieffer.
64 Peristaltic Movements of the Stomach and Capacity of Extension of the Fundus. (Studien über Magenbewegung.) K. Sick and F. Tedesko.
65 *Dyspepsia from Intestinal Fermentation. (Intestinale Gärungsdyspepsie.) H. Meyer. Id. and Test Diet for Study of Functioning of Intestines. (Probediäten zur Untersuchung der Darmfunktionen.) A. Schmidt.
66 Experimental Production of Atrophy of Bone Marrow with Typhoid Toxin. (Knochenmarksatrophie.) H. Hirschfeld.
67 *Intravenous Strophanthin Treatment. C. Hoepffner.
68 *Morphologic Study of the Blood at the Bedside. (Blutuntersuchung am Krankenbette.) O. J. Wynhausen.
69 *Pressure in Pleuritic Effusions. (Druck bei Pleuraergüssen.) W. Weitz.
70 *Temporary Improvement in Leukemia Under Tuberculin. Id.
71 Physiologic Importance of Leucocytic Changes in the Blood in Infectious Disease. (Leukozytischen Blutveränderungen bei Infektionskrankheiten.) K. Ziegler and H. Schlecht.
72 Ring Bodies in the Blood in Anemia. (Ringkörper im Blute Anämischer.) Gabriel.

63. **Influence of Occupation on Size of Heart.**—Schieffer computed a normal standard for the proportions of the body and heart from an average of 56 healthy young recruits. Comparing this standard with 33 men accustomed to hard manual labor, 23 with light work, and 32 others who use the bicycle constantly, he finds that the heart enlarges in size as demands are made on it—a physiologic reaction to the stress. Bicycling has the same effect as hard manual labor in this respect. The same conclusions apply also to the military service.

65. **Dyspepsia from Abnormal Fermentation in the Intestines.**—Meyer describes his experiences with 16 patients. The trouble is defective secretion in the glands of the small intestines, presumably of functional nature. It may occur independently, especially in neurasthenic and anemic individuals, or it may be the result of a primary stomach affection. Abstention from carbohydrates for a time is generally sufficient treatment, with all vegetables passed through a sieve. Possibly lavage of the stomach, hydrochloric acid and massage may be required. (See abstract 74.)

67. **Intravenous Injection of Strophanthin.**—Hoepffner has made 78 intravenous injections in 34 patients, including 5 with pneumonia and 4 with tuberculosis. In these latter cases the results were only transient. The drug displayed the greatest efficacy in 8 cases of chronic nephritis with cardiac insufficiency. In one of these cases 11 injections of 1 mg. were given in 41 days with complete subsidence of the extensive dropsy which had previously resisted all treatment.

The drug also proved beneficial in 2 cases of heart failure in meningitis and typhoid, also in 12 cases of chronic heart disease. He had 2 fatalities, and the injection was evidently responsible for one of them, he says. The patient had a severe chill an hour after the injection; it had been given for a severe uncompensated valvular defect. The chill was probably the result of bacterial contamination of the drug. The patient succumbed during the chill.

68. **Blood Findings at the Bedside.**—Wynhausen describes the findings in half a dozen cases of atypical leukemia and leukanemia in children.

69. **Pressure in Pleural Effusions.**—Weitz regards determination of the pressure as very important. It shows when to arrest the puncture, and is also useful for differentiation.

70. **Tuberculin in Leukemia.**—Weitz has found that tuberculin gives a transient improvement which may be found useful as a preliminary to other measures in treating leukemia.

Deutsche medizinische Wochenschrift, Berlin.

June 4, XXXIV, No. 23, pp. 993-1040.

73 *Painless Delivery Under Scopolamin-Morphin. (Schmerzlose Entbindungen im Dämmerschlaf.) B. Krönig.
74 *Tests of Intestine Functioning and Their Results. (Die neueren klinischen Untersuchungsmethoden der Darmfunktionen und ihre Ergebnisse.) A. Schmidt.
75 Stenosis and Insufficiency of the Pylorus. (Fall von Verengerung und Schlussunfähigkeit des Pylorus.) M. Einhorn.
76 Meningococcus Serum. Krumbein and P. Schatiloff.
77 *Examination with the Sphygmobolometer. (Sphygmobolometrische Untersuchungen an Gesunden und Kranken.) H. Schulthess. Commenced in No. 22.
78 Unilateral Hyperidrosis. J. Friedländer.
79 Operation for Deep Abscess on the Tongue. (Operation von tiefliegenden Zungenabszessen.) A. Brunk.
80 Treatment of Fractures of Fingers. (Fingerfrakturen.) P. Ewald.

73. **Delivery Under Scopolamin-Morphin.**—Krönig believes that the modern woman has nervous exhaustion and loss of will power in the course of childbirth to an extent hitherto unrecognized, and that this tendency is constantly increasing, especially among the so-called better classes. Obstetricians who practice in the "West End" of Berlin state that they have to use forceps in nearly 40 per cent. of the childbirths. Everyone there agrees that the increase in the number of cases of puerperal fever is due to the increasing proportion of forceps deliveries. More and more is it demanded of obstetricians that they relieve or put an end to the pains of childbirth. He thinks that the nervous system of the modern woman is scarcely able to stand the stress of labor, which is really not physiologic with her, as the nervous system is below par. That neurasthenia does not follow childbirth more frequently than it does is a matter for surprise. He is convinced that his technic of scopolamin-morphin "twilight sleep" answers its purpose of rendering childbirth entirely or nearly painless. He has applied it in 1,500 cases. In his last 500 one patient succumbed to hemorrhage from rupture of the uterus, the family refusing to allow an operation; one child died during delivery and 3 others in the first three days. He ascribes this low mortality to the benumbing of the respiration center by the trace of scopolamin which passes to the child and prevents aspiration of amniotic fluid, etc. This theoretic explanation is assailable, but the fact remains that with an experience of 1,500 cases the mortality of the children, during and immediately after delivery, is much less than it was before the scopolamin technic was introduced. Later reports from nearly 300 of the children show that the development in all respects has been normal. Everything depends on correct dosage and management, and years of experience have been required to attain the results reported. The supervision of the patient requires the most careful intensive attention. The woman must be protected against noises, bright light, etc. Great practice and skill are required for this technic. He has not found that it prolongs the birth process beyond its physiologic limits; even if it should lengthen it by half an hour, he thinks that this might well be disregarded. The details of the technic used at the clinic were summarized in these columns March 7 and 16, 1907, pages 912 and 983, as published by Gauss.

74. **Tests of Intestinal Functioning.**—Schmidt uses a test diet for two or three days consisting of from one to three pints of milk, raw or cooked in the dishes; porridge, strained; one soft boiled egg; from 100 to 250 gm. soft mashed potato and 100 gm. white bread or its equivalent, with tea or cocoa in the morning, and, at midday, a quarter of a pound of finely chopped raw beef, browned a little on the outside, but raw inside. The third day the stool is examined; scraps of connective tissue reveal disturbance in the gastric digestion. Of all the digestive fluids, only the gastric juice is able to digest raw connective tissue. The discovery of undigested connective tissue thus reveals some derangement in the functioning of the stomach, which may be responsible for a supposed intestinal trouble. He gives an illustrated description of his test of pancreas functioning by means of small cubes of fresh beef tied in a bag made of a circle of gauze. It is swallowed with the food. When the little bag is found in the stool the nuclei in the meat are digested out in normal conditions and nothing is left in the gauze but the tissue fibers. When the nuclei are retained unimpaired this is a sign of secretory insufficiency in the pancreas on a functional basis. The Cammidge test is rather a sign of destruction of pancreas tissue, especially fat tissue necrosis. Discovery of sago-like grains, representing the relics of potatoes, indicates disturbance in the digestion in the small intestine. This may occur alone, and suggest insufficiency of the intestinal secretion which breaks up starch, for neither the lack of saliva nor of pancreatic secretion leads to such losses of starch. One of the common consequences is abnormal fermentation in the intestines, revealed by formation of gas, acid reaction, lighter color and odor of butyric acid when the stool is kept in the incubator for 24 hours. Prolonged fermentation dyspepsia entails irritation of the intestinal mucosa, with secondary catarrh. Treatment consists in abstention from carbohydrates and treatment of any accompanying stomach derangement. His experience has been that the majority of the so-called nervous diarrheas are latent catarrhs. The nutrient medium determines the flora, not the reverse. In regard to constipation, his research has shown that not only the water, but also the dry substance of the total stools are much below the normal amounts. The constipation is due to the fact that the digestion is too perfect. The food is digested and assimilated too completely; there is not enough waste left to form a proper culture medium for the normal bacteria, and consequently there is no stimulus for natural peristalsis. Treatment should aim to supply substances to make the feces more bulky and moist, and this he accomplishes by having the patients take agar-agar regularly. The intestinal motor functions are stimulated by it without the least irritating action. The effect has been excellent, and confirms his theory in regard to the true cause of constipation. Increasing knowledge of the functional disturbances of the stomach has shown, he declares, that motor disturbances, aside from stenosis, are as a rule secondary, and it is more than likely that the same is true also of the intestines. The aim should be to separate the complicated chemistry of digestion in the small intestine and its disturbances into its single components. Functional tests with his "test diet" show that this is possible.

77. **Clinical Importance of the Sphygmobolometer.**—Schulthess relates his experiences and the results of examination of more than 100 recruits, 18 healthy nurses and 19 patients with heart affections. He thinks that this method of sphygmobolometry fills a long-felt want, as it allows the work of the left ventricle to be recorded in figures. It shows the relations and the differences between the pathologic and the normal systole, and the varying behavior of the same heart under different conditions. The reaction of the heart thus measured in figures allows the effect of heart tonics to be judged with certain and objective findings, apart from the patient's statements or the pulse findings, and without waiting for the disappearance of signs of pronounced insufficiency.

Medizinische Klinik, Berlin.

June 7, IV, No 23, pp. 855-894.

81 Participation of Ophthalmologists in Operative Treatment of Orbital Accessory Cavities. (Operative Behandlung der orbitalen Nebenhöhlen.) T. Axenfeld.
82 *Non-melanotic Sarcoma of Rectum. A. Exner.
83 Course of Influenzal Encephalitis Simulating Tetanus. H. Berger.
84 *Preparation of Patients for Laparotomies. M. Schwab.
85 Balneotherapy of Heart and Vascular Affections Result of Metabolic Disturbances. (Balneotherapie bei durch Stoffwechselstörungen bedingten Herz- und Gefässerkrankungen.) M. Fisch.
86 Injections of Air. (Luftinjektionen.) W. Alexander.
87 Conjunctival Reaction and Allergy Test. (Ophthalmoreaktion und Allergieprobe.) Hammerschmidt.
88 Arteriosclerosis and Sea Climate. Ide.
89 Determination of Presence of Carbon Monoxid in Blood. (Nachweis von Kohlenoxyd im Blute.) O. Schumm.
90 *Failure of Calomel Salve to Protect Against Syphilis. G. Vorberg.

82. **Sarcoma of Rectum.**—Exner reviews what has been written on the subject of non-melanotic sarcoma of the rectum and reports two cases. This material shows that apparently harmless hemorrhoidal nodules may be the starting point for a sarcoma. Overlooking the malignant nature of the hemorrhoidal growth may have the most serious consequences, as in one of the cases reported. In the other case the unusual toughness of one of the nodules led to its being examined under the microscope, with discovery of a small-celled, round-celled sarcoma. The patient is in apparently perfect health to date, more than a year since its removal. She had applied for relief from recurring hemorrhages from inflamed external hemorrhoids. The rectum was amputated; no metastases were found in it.

84. **Preparation for Laparotomy.**—Schwab regards general anesthesia as defectively conducted when the patient makes any retching movements. Even if it does not come to vomiting, the retching not only brings danger of aspiration pneumonia, but has a very weakening effect besides. Consequently he believes in using plenty of the anesthetic to prevent any tendency to vomit. Another prophylactic measure which does not receive the attention it deserves, he says, is thorough disinfection of the mouth. Disinfection of the field of operation with benzin and iodin is the simplest, quickest and least depressing of all technics to date, he thinks. He gives a sedative for the last few days before the operation, and insists on all present refraining from speaking during the operation or else wearing veils, even when they have nothing to do with the operation.

90. **Failure of Calomel Salve to Protect Against Syphilis.**—Vorberg has collected from various society proceedings a number of cases of the prophylactic use of Metchnikoff's calomel salve with disastrous results, although applied strictly according to directions.

Münchener medizinische Wochenschrift.

June 2, LV, No. 22, pp. 1161-1216.

91 *Experimental Study of Extrauterine Blood Production. (Extrauterine Blutbildung.) E. Meyer.
92 Histologic Changes in Blood Producing Organs in Pernicious Anemia. P. Schatiloff.
93 Spirochetes in Mouse Cancers. (Spirochäten bei den Krebsgeschwülsten der Mäuse.) H. Deetjen.
94 *Congenital Syphilis and Tuberculosis of Suprarenals. Esser and Schultze.
95 Determination of "Bacillus Longus" in Feces and Its Significance. (Nachweis der langen Bazillen in den Fäzes und dessen klinische Bedeutung.) G. Sandberger.
96 *Diagnosis of Tuberculosis of Lungs. K. E. Ranke.
97 Moderate or Radical Conservatism in Treatment of Contracted Pelvis? (Behandlung des engen Beckens?) O. v. Herff.
98 *Cesarean Section and Spinal Anesthesia. (Kaiserschnitt und Lumbalanästhesie.) O. Polano.
99 Systematic Inhalation of Hydrogen Dioxid in Prophylaxis of Measles. (Vorschläge zu einer medikamentösen Prophylaxe der Masern.) J. Langer.
100 Bolus in Treatment of Diphtheria. Stumpf.

91. **Experimental Research on Formation of Blood.**—Meyer's experiments demonstrate that degeneration of the spleen follicles can not be the cause of leukemia. Consequently splenectomy is irrational. They further show that the proliferation of marrow tissue in pernicious anemia is a reparatory process and not the cause of the anemia. Roentgen treatment of this proliferation of marrow tissue is therefore useless.

94. **Congenital Syphilis of the Suprarenals.**—Esser reports three cases of inherited syphilis in infants in which the sole or predominant localization of the syphilis was in the suprarenals. Vomiting, colic and diarrhea, independent of the food, were the main symptoms. In Elässer's compilation of 549 cases of tuberculosis of the suprarenals, in 17 per cent. there was no tuberculous affection of any other organ, but in 43 per cent. there was chronic pulmonary tuberculosis. In both syphilis and tuberculosis the suprarenals can thus be the primary seat of the disease, possibly from intrauterine transmission of the infection. The suprarenals of syphilitic fetuses should be examined for spirochetes.

96. **Diagnosis of Incipient Tuberculosis of the Lungs.**—Ranke has been able to make a physical examination of the lungs of a number of persons succumbing to various non-tuberculous diseases, the findings being controlled by autopsy not long after. He found ten cases in which the lungs showed traces of a small apical lesion. Those about the size of a bean gave no clinical signs of their existence, but one lesion, about the size of a hazelnut, was recognized during life. The breathing sound was harshly vesicular, expiration prolonged, and the murmur changed more to the bronchial type. The infiltration in this case was manifested both by percussion and auscultation. His experience further confirms the diagnostic importance of the obscuring, the "veiling" of the inner margin. It is generally combined with dulness over the apex. His cases showed that distinct restriction of the field of resonance over the apex is the result of an effusion or of pleuritic thickening. Percussion of the lower margin of the lung and its excursion is an important link in the chain of symptoms, especially when positive. The diaphragm may be restricted in its movements, even in incipient tuberculosis, but this is not always necessary. In twenty persons examined there was no change in the breathing sound toward the bronchial type, and in none of these cases was any infiltration in the lungs discovered later. This confirms the importance of this physical sign for the diagnosis. In case of secretion in the bronchi the breathing sounds are harsh and jerking, with prolonged expiration. This form of expiration is exclusively a symptom of secretion, and must be distinguished from the prolonged expiration with the tendency to bronchial breathing and its transitions into the vesicular—this being a symptom of infiltration, although both types may be combined. He found what he calls "unclear" breathing sounds (*unreines Atmen*) in three cases with pleuritic thickening, but no infiltration or secretion. This anomaly is noted especially in elderly people, but has no differentiating importance. Increased intensity in the inspiratory sound is ascribed in the text-books to catarrhal secretion. His experience has shown, however, that it occurs frequently when there is a tuberculous focus, as a sign of vicarious emphysema. Infiltrated parts are surrounded by a zone of more or less distended air vesicles, and this is the rule with apical cicatrices. He thinks it probable that this local emphysema is manifested by increased intensity in the breathing sounds. He adds that the relative proportions between the signs must be borne in mind, citing as an example of the necessity for this rule a case of heart disease in which there was pronounced dulness over one apex, impairment of resonance, increased vocal resonance, and prolonged expiration but no vesicular inspiration. The lack of change in the inspiratory sound was all that prevented the erroneous diagnosis of a large cicatrix in the right apex. Autopsy showed extensive pleuritic thickening and reduced circulation in the apex, owing to an old thrombus in the pulmonary vein, but no signs of infiltration. This case teaches the importance of correlation between the symptoms for the diagnosis of tuberculosis.

98. **Cesarean Section and Spinal Anesthesia.**—Polano was able to render Cesarean section painless, in the four cases he reports, by the use of spinal anesthesia. The patients all had flat, rachitic pelves. The four children were normal and lively, differing in no respect from spontaneously born children. He believes that the children suffer from the general anesthesia in ordinary Cesarean section, and that this is avoided with spinal anesthesia. The fact that the contracting power

of the uterus is independent of the anesthetized spinal cord was confirmed by the experiences in these cases. The uterus contracted at once as under normal conditions, and the loss of blood was slight, while the anesthesia was complete.

Virchows Archiv, Berlin.

April, CXCII, No. 1, pp. 1-192.

101 *The Blood in Meningitis. (Verhalten des Blutes bei Meningitis.) G. Zand.
102 *Etiology, Course and Cure of Dissecting Aneurism of the Aorta. F. Schede.
103 Pocket Formation in the Endocardium with Aortic Incompetence. (Endokardiale Taschenbildung bei Aorteninsuffizienz.) A. Schmincke.
104 Experimental Pathology of the Blood Vessels. L. D'Amato.
105 Etiology of Congenital Atresia of the Esophagus with Esophagotracheal Fistula. H. Giffhorn.
106 Pathogenesis of Traction Diverticulum of the Esophagus. G. Riebold.

101. **The Blood in Meningitis.**—Zand concludes from investigations in 10 cases of epidemic meningitis, 2 of suppurative and 6 of tuberculous meningitis that high leucocytosis speaks against the tuberculous variety. When the case is progressing favorably, the number of leucocytes gradually declines even to subnormal figures. In the non-tuberculous forms the leucocytosis is predominantly in the multinuclear neutrophile cells.

102. **Dissecting Aneurism of the Aorta.**—Schede reports, with autopsy findings, a case of dissecting aortic aneurism in a woman of 70, and reviews similar cases on record. In his case the dissecting aneurism had spontaneously healed enough to restore comparatively normal conditions, and it was an autopsy surprise.

Wiener klinische Wochenschrift.

May 28, XXI, No. 22, pp. 783-822.

107 *Constitutional Predisposition to Disease on Part of Lymphatics. (Hypoplastische Konstitution und ihre Bedeutung.) J. Bartel.
108 Connection Between Lobule of Ear and Tuberculosis. (Verhältnis des Ohrläppchens zur Tuberkulose.) G. J. Rossolimo.
109 *Alimentary Levulosuria. A. R. v. Sabatowski.
110 *Phloridzin Test of Kidney Functioning. (Phloridzinprobe.) V. Blum and H. Prigl.
111 Palpation of Appendix. T. Hausmann.
112 Means of Aborting Attack of Angina Pectoris and Paroxysmal Tachycardia. (Kunstgriff zur Unterdruckung der Anfälle von Angina pectoris und paroxysmaler Tachykardie.) M. Herz.

107. **"The Lymphatic Temperament."**—Bartel writes from Weichselbaum's Institute for pathologic anatomy at Vienna to announce certain conclusions in regard to the influence of defective development of the lymphatic system as encountered in more than 100 cadavers. Individuals with this hypoplastic constitution succumb between the ages of 14 and 25 in 56 per cent. of the cases, mostly to infectious diseases, especially tuberculosis, to which they oppose slight resistance. Suicide, diabetes and nephritis, also abnormal pregnancy or eclampsia, are responsible for some of the mortality. Between 26 and 45, exophthalmic goiter, placenta prævia, ectopic pregnancy, atheroma and fatalities under anesthesia carry off 40 per cent. After 46, tumors are exceptionally frequent at all ages, especially glioma, teratoid, epithelial and connective tissue growths. The female sex predominates. He regards the fate of individuals with this hypoplastic constitution as a kind of natural filtering process, fully 56 per cent. succumbing before they reach the reproductive period. All were tall and well developed, even unusually plump in some of his cases, except for the narrowness of the arterial system, the "lymphatism," and the hypoplasia of the genitalia. The vulnerability may be due to some special weakness of the mesodermal layer. The glands in the neck and mesentery were always inclined to be large, and they cut like marrow; the thymus was always large, except in cases of chronic tuberculosis.

109. **Alimentary Levulosuria.**—Sabatowski calls attention to the alimentary levulosuria test as deserving wider application. Positive findings were obtained constantly in cirrhosis of the liver, while the findings were negative with nutmeg liver unless there were marked anatomic changes in the parenchyma. Positive findings are also the rule in infectious diseases, and in jaundice of infectious and toxic origin. Jaundice from obstruction does not give the test unless there are anatomic changes in the parenchyma. He has applied the test in 78 cases of liver affections, giving 100 gm. levulose in lemonade. Vomiting or diarrhea occurred in about 6 cases each in 120 tests. He believes that the levulosuria is independent of stasis of bile, but is a constant accompaniment of every severe liver affection, and may serve to differentiate an infectious process in the liver. In one case a tumor under the right costal arch suggested a liver affection, but the absence of alimentary levulosuria confirmed the assumption of a tuberculous process in the great omentum.

110. **The Phloridzin Test of Kidney Functioning.**—Blum and Prigl regard this test as much inferior to the indigo carmine test, as it has given contradictory findings in their hands. Delay in appearance of sugar in the urine after administration of the phloridizin, beyond the fifteen-minutes interval accepted as the normal standard, is not a certain sign of anatomic or functional lesion in the kidney.

Zentralblatt für Chirurgie, Leipsic.

June 6, XXXV, No. 23, pp. 697-728.

113 *Method of Expelling the Blood from the Lower Half of the Body. (Künstliche Blutleere der unteren Körperhälfte.) Momburg.
114 Technic of Esophagoscopy. Kölliker.

113. **Method of Expelling the Blood from the Lower Half of the Body.**—Momburg has been studying for some time means to render operations as bloodless as possible, and has become convinced that it is possible and harmless to cut off from the circulation the entire lower half of the body. He accomplishes this by drawing a belt so tight that the pulsation in the femoral artery can no longer be detected. A rubber tube nearly an inch in diameter is stretched to its utmost length and then wound from two to four times around the waist of the reclining patient, midway between the crests of the ileum and the costal arch, and fastened. This exclusion of half of the body from the circulation is very simple; it answers the purpose perfectly, and does not injure the intestines or ureter, as the thick abdominal walls spread the pressure; the other abdominal organs lie outside the zone of compression. There does not seem to be any disturbance in the heart action when the patient is thus belted in. The spinal cord is not affected, as the compression is below its lowest point. The conditions are different in animals, but even with them the use of a broad band or interposition of a strip of felt allows the compression to be maintained for an hour and a half without apparent injury. When the compression is to be removed he applies a constricting band to each thigh and raises the legs so that the restoration of circulation occurs gradually, as otherwise there is transient disturbance in the heart action. The respiration was never affected. He has applied this technic in two cases, besides tests on healthy men, who bore the compression without an anesthetic for five minutes. In one of the clinical cases the elastic tube was in place for 43 minutes and in the other for 18 minutes. In the last case a sarcoma of the hip joint required exarticulation, which was done under spinal anesthesia without loss of blood, as the lower part of the body had thus been shut off from the circulation.

Zentralblatt für Gynäkologie, Leipsic.

May 23, XXXII, No. 21, pp. 689-728.

115 *Scopolamin-Morphin in Obstetrics. K. Mayer.
116 Obstetric Importance of Blood Pressure and Its Relation to the Work of the Heart. (Geburtshilfliche Bedeutung des Blutdrucks und sein Verhältnis zur Arbeit des Herzens.) J. M. Slemons and F. C. Goldsborough.
117 A Cytotoxin Which Induces Fatty Degeneration of the Ovary. (Ein Cytotoxin welches die Fettentartung des Eierstocks hervorruft.) S. delle Chiaje.
118 *Case of Amaurosis in Pregnancy. E. Holzbach.
119 Measurement of Gravid Uterus. (Messung des graviden Uterus.) Piering.
120 Combined Instrument Sterilizer and Table. (Vereinigung von Instrumentenkocher und Instrumententisch.) F. Stahler. (Siegen).

115. **Scopolamin Morphin in Obstetrics.**—Mayer has followed Gauss' technic in 50 obstetric cases. His impressions

are that the procedure does not quite attain its purpose of relieving or banishing the pain of labor, and that the indications for this technic are comparatively limited, while the occasional by-effects and disturbances stand in the way of its unconditional recommendation. He reiterates that this scopolamin-morphin method should never be applied outside of an institution where constant supervision of the parturient by a physician is possible. The general practitioner can not expect to apply this technic in his practice.

118. **Amaurosis in Pregnancy.**—Holzbach reports a case of amaurosis gradually developing in the course of pregnancy. The first signs of optic neuritis were noted about the fourth month; both eyes were affected and external causes could be excluded. The optic nerve was atrophied when the patient was first seen and the indications for interruption of the pregnancy were beyond question. Sight began to improve at once, and within two weeks vision was restored in the right eye. The other eye was first involved and the nerve was atrophic beyond relief. The woman was an x-para of 37, with eight children, and he deemed it necessary to insure future sterility by an operation on the tubes. The case confirms anew the importance of immediate interruption of the pregnancy in case of optic neuritis from this cause.

Gazzetta degli Ospedali e delle Cliniche, Milan.

May 10, XXIX, No. 56, pp. 585-600.

121 Case of Syphilitic Tumor in Stomach. L. Paglieri.
122 Astrology in Medicine. (L'astrologia nella medicina e il "fasciculo" di Petrus da Montagnana.) G. Tanfani.

May 17, No. 59, pp. 617-632.

123 *Pyretic Phase in Action of Quinin. (Fase piretica nell azione del chinino.) S. Mircoli.
124 Cutaneous Serum Reaction in Syphilis. (Fenomeni di allergia nei sifilitici.) E. Tedeschi.

123. **Pyretic Phase in Action of Quinin.**—Mircoli reports experimental research which corroborates the views of the Roman school in regard to the best technic for administration of quinin. If given too soon either it has no action or the pyretic phase of the quinin influence will be superposed on that of the malaria. Given too close to the paroxysm the quinin does not have time to manifest its antipyretic action. The sensitized organism is liable to react with the febrile phase, and the febrile condition is magnified by the combination of the malarial and quinin pyresis. In the subcontinuous form, lacking the control of the thermic cycle, if quinin is given by routine it may induce continued high temperature from the thermic reaction to the quinin by the soil sensitized by the malaria. The "Roman" technic is the administration of a single dose of 1 or 2 gm. (15 or 30 grains) of the quinin salt a few hours before the paroxysm.

Policlinico, Rome.

May, XV, Surgical Section, No. 5, pp. 193-240.

125 Modifications in Blood in Preventive Hemostasis with Esmarch-Silvestri Technic. (Modificazioni della crasi sanguigna nell'emostasi preventiva.) T. Casoni.

May, Medical Section, No. 5, pp. 193-240.

126 Are There Latent or Rudimentary Types of Dystrophy of the Muscles (Erb)? Is Recovery Possible? A. Marina.
127 Tumors in Corpus Callosum. G. Panegrossi.
128 *Raynaud's Disease and Exophthalmic Goiter. A. Piazza.

May 31, Practical Section, No. 22, pp. 677-708.

129 *Perineal Prostatectomy Preceded by Suprapubic Cystostomy in Septic Case. R. Cassanello.
130 *Parotitis from Pneumococcus Infection. E. Bargellini.

128. **Raynaud's Disease and Exophthalmic Goiter.**—Piazza has recently observed a case of this combination in a young woman. The first symptom of Raynaud's disease appeared at the age of 6, and progressed to trophic disturbances. The symptoms of exophthalmic goiter appeared about puberty.

129. **Prostatectomy in Septic Cases.**—Cassanello's patient was a man of 63, with complete septic retention of urine, enormous distention of the bladder, and serious general intoxication. Suprapubic cystostomy with local treatment of the urinary passages improved conditions to such an extent that perineal prostatectomy could be successfully performed a month later.

130. **Parotitis from Pneumococcus Infection.**—Bargellini reports three cases of pneumonia in which bilateral parotitis developed toward the crisis. In one case the process progressed to necrosis of the gland. Streptococci could be cultivated from the pus, after the incision, and healing was not complete for more than a month. The process healed in the second case immediately after evacuation; in the third case the process subsided spontaneously.

Norsk Magazin for Lægevidenskaben, Christiania.

June, LXIX, No. 6, pp. 509-640.

131 History of Conceptions of Cause and Nature of Disease. (Forskjellige tiders ideer om sygdommenes aarsager og væsen.) A. Fonahn.
132 *Multiple Cancers. A. De Besche.
133 Principles of Psychiatry. (Psykiatriens grundtraek.) R. Vogt. Commenced in No. 4.
134 *Nodular Rheumatism in Children. (Subkutane knuder ved rheumatismus acutus i barnealderen med sektionsresultat.) K. J. Titlestad.

132. **Multiple Cancers.**—De Besche reports 6 cases and reviews others in the literature in which malignant neoplasms of different histologic structure occurred in the same individual, generally each with its distinct metastases.

134. **Nodular Acute Rheumatism.**—Titlestad reports a case of acute rheumatism in a girl of 6 with numerous subcutaneous nodules. Most of the nodules subsided spontaneously in the course of a week or so. The little patient had also a valvular defect, and collapse followed a dose of 0.5 gm. (7.5 grains) of antipyrin given to arrest the pain of the rheumatism. The child succumbed a few days later.

Book Notices

MODERN MEDICINE, ITS THEORY AND PRACTICE. By William Osler, M.D., Regius Professor of Medicine in Oxford University, England. Assisted by Thomas McCrae, M.D., Associate Professor of Medicine and Clinical Therapeutics in Johns Hopkins University, Baltimore. Vol. IV. Cloth. Pp. 865 with illustrations. Price, $6.00. Philadelphia: Lea and Febiger, 1908.

TEXT-BOOK OF HUMAN PHYSIOLOGY, including a Section on Physiologic Apparatus. By Albert P. Brubaker, A.M., M.D., Professor of Physiology and Hygiene in the Jefferson Medical College. Third Edition, revised and enlarged. Pp. 752 with illustrations. Price, $3.00. Philadelphia: P. Blakiston's Son & Co., 1908.

URIC ACID AS A FACTOR IN THE CAUSATION OF DISEASE. By Alexander Haig, M.A., M.D. Oxon., F.R.C.P. Physician to the Metropolitan Hospital and the Royal Hospital for Children and Women. Seventh Edition. Pp. 940 with 75 illustrations. Price, $4.00. Philadelphia: P. Blakiston's Son & Co., 1908.

TEXT-BOOK OF THE PRINCIPLES OF ANIMAL HISTOLOGY. By Ulric Dahlgren, M.S., Assistant Professor in Biology in Princeton University, and William A Kepner, A.B., Adjunct Professor in Biology in the University of Virginia. Cloth. Pp. 515. Price, $3.75. New York: The Macmillan Co., 1908.

HANDBOOK OF MEDICINE AND THERAPEUTICS. By Alexander Wheeler, L.R.C.P., S.E., and William R. Jack, B.Sc., F.F.P.S.G., Assistant to the Professor of Practice of Medicine, Glasgow University. Third Edition. Cloth. Pp. 512. Price, $2.50. New York: William Wood & Co., 1908.

DISEASES OF INFANCY AND CHILDHOOD. By Louis Fischer, M.D., Fellow of the New York Academy of Medicine. Second Edition. Pp. 979 with illustrations. Cloth. Price, $6.50. Philadelphia: F. A. Davis Co., 1908.

STUDENT'S HANDBOOK OF GYNECCOLOGY. By George Ernest Herman, M.D. (Lond.), F.R.C.P., F.R.C.S., Consulting Obstetric Physician to the London Hospital. Cloth. Pp. 544 with illustrations. Price, $2.50. New York: William Wood & Co., 1908.

MASLEY'S BOOK OF PRESCRIPTIONS. Rewritten by E. W. Lucas, F.I.C., F.I.S., Late Examiner to the Pharmaceutical Society of Great Britain. Ninth Edition. Pp. 366. Cloth. Price, $2.00. Philadelphia: P. Blakiston's Son & Co., 1907.

TREATMENT OF GONORRHEA IN THE FEMALE. By Charles Leedham-Green, M.B., F.R.C.P., Surgeon to the Queen's Hospital, Birmingham. Second Edition. Cloth. Price, $2.00. Pp. 160. New York: William Wood & Co., 1908.

PHYSICAL SIGNS OF DISEASES OF THE THORAX AND ABDOMEN. By James E. H. Sawyer, M.A., M.D. Oxon., M.R.C.P. Lond. Pp. 188. Cloth. Price, $2.00. New York: William Wood & Co., 1908.

AIDS IN OSTEOLOGY. By Philip Turner, B.Sc., M.B., M.S. (Lond.), F.R.C.S., Demonstrator of Anatomy. Guy's Hospital. Cloth. Pp. 187. Price, $1.25. New York: William Wood & Co., 1908.

WRITINGS OF SIR WILLIAM BROADBENT. Edited by Walter Broadbent M.D., M.R.C.P. Cloth. Pp. 444. Price, 3.60. New York: Oxford University Press, 1908.

TWENTY-SIXTH ANNUAL REPORT of the State Hospital for the Insane, Warren, Pa., for the Year Ending Nov. 30, 1907. Paper Pp. 103.